

# THE IRON AGE

New York, July 26, 1923

ESTABLISHED 1855

VOL. 112, No. 4

## Strength of Steels at High Temperatures\*

Carbon and Alloy Steels Compared—Effects of Carbon Content and Heat Treatment on Plain Steels—  
Nickel and Chromium Steels

BY H. J. FRENCH AND W. A. TUCKER

TESTS described in this report were made primarily to determine the general effects of varying composition, particularly with respect to alloying elements, upon the tensile properties of steel at temperatures up to about 600 deg. C. When work was started it was found impracticable to secure alloys in sufficient quantities and made under comparable conditions in which the proportions of a single element were varied while all other factors were kept constant, so that the investigation was largely restricted to commercial steels. Only short-time tests were made which do not give information so much desired, i.e., comparisons under sustained loads in those temperature ranges in which the time factor is of prime importance, but sufficient work was carried out to warrant some conclusions of general interest.

While long-time tests are required to determine limiting temperatures below which definite loads can be applied without considerable flow and subsequent failure they do not, however, supply complete information unless carried out under actual operating conditions, for in most cases in which steels are required for high temperature service other factors such as resistance to specific types of corrosion, etc., are of equal importance. Emphasis is therefore laid upon the fact that the scope of the described tests is restricted to one phase of the general subject of the properties of steels at elevated temperatures.

The work supplements that described in an earlier publication [9]† in which attention was called to the increasing interest in the behavior of steels subjected to high temperature service and the inadequacy of available data. Since that time considerable additional information has been presented by Edert [10], Dickenson [11] and

others but no detailed review of their work will here be given. Instead there is appended a bibliography containing a summary of steels tested by various investigators, and in addition such comparisons as appear necessary or desirable will be included in the various figures or tables which follow.

### Materials and Methods Used

Twenty-two steels, first normalized or quenched and tempered, were tested at various temperatures between 20 and 600 deg. C. These include carbon steels of varying carbon content, steels containing single alloying elements such as nickel, chromium, cobalt, tungsten and uranium and commercial quaternary steels such as nickel-chromium, chromium-vanadium, chromium-molybdenum and nickel-uranium. Except as otherwise indicated, flat test specimens were used with a 2-in. gage length and reduced section of 7/16 in. x 3/4 in. and in all cases the equipment and procedure employed was exactly the same as that used in previous tests and already described in detail.‡

The terms proportional limit, tensile strength, etc., used in this report are largely "apparent values," i.e., values observed under a definite set of test conditions and do not have the same significance as in tests at atmospheric temperatures, inasmuch as the properties of steel are so largely dependent upon the rate of loading throughout a large part of the temperature range considered. They serve solely as a basis for comparison of various steels or treatments and were obtained in tests

in which care was taken to load all specimens slowly at the same speed. Duplicate, and frequently triplicate, determinations were made at the majority of temperatures chosen and in such cases averages only have been used in the data which follow.

No extended description of inflections in physical properties-temperature curves will be attempted as

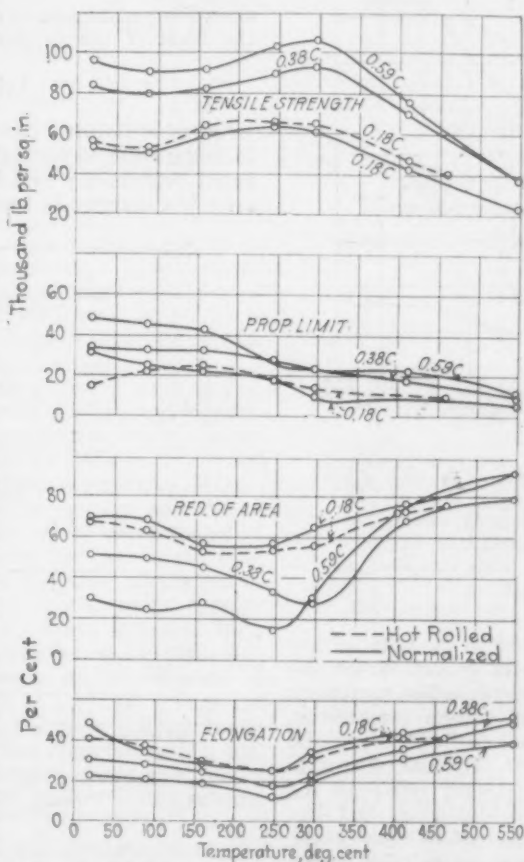


Fig. 1—High temperature tensile properties of hot rolled or normalized carbon steel. Compositions:  
C, 0.18 Mn, 0.43 P, 0.017 S, 0.035 Si, ...  
0.38 0.56 0.014 0.013 0.14  
0.59 0.40 0.017 0.027 0.05  
Steels normalized by heating respectively to 900, 850 and 850 deg. C, and after 30 min. cooling in air

\*Published by permission of the director of the Bureau of Standards of the U. S. Department of Commerce. The authors are physicist and laboratory aid respectively at the Bureau of Standards, Washington.

†The references in brackets refer to those given in the bibliography at the conclusion of this report.

‡Bureau of Standards, Tech. Paper 219.

these are clearly shown for the different steels in the illustrations accompanying this report. The investigation consists primarily of the compilation of a relatively large amount of test data, not well adapted to detailed comparisons of this nature, so that more attention will be paid to the general effects of heat treatment and different alloying elements and to features of special interest in connection with individual alloys.

### Carbon Steels

*Stress vs. limit of proportionality.*—Considerable discussion has centered upon the changes in proportional

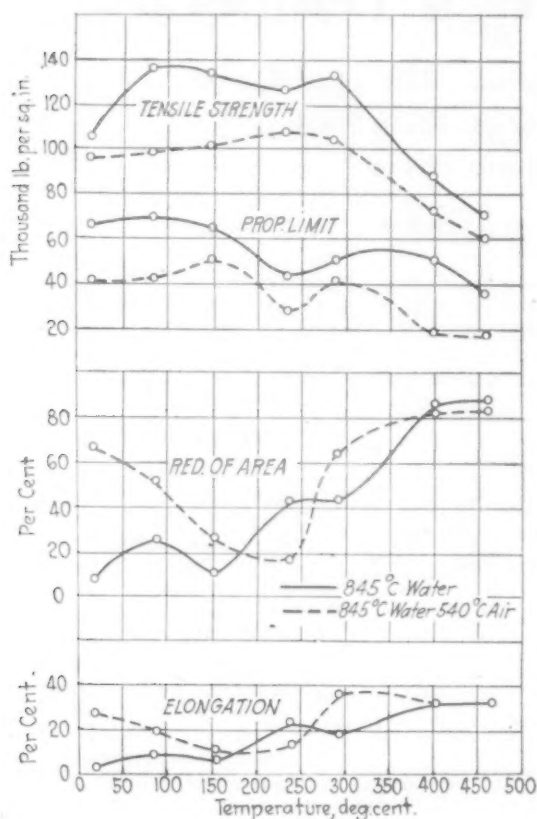


Fig. 2—High temperature tensile properties of water quenched and quenched and tempered medium carbon steel. C, 0.33 Mn, 0.53 P, 0.016 S, 0.036 Si, 0.07. Quenched samples heated 30 min. at 845 deg. C. and immersed in water. Quenched and tempered samples treated as above and then tempered 30 min. at 540 deg. C.

limit with first rise in temperature in medium or low carbon steels. Some investigators report direct decrease in values while others find negligible variations or a marked increase for alloys of similar composition in which all other factors such as tensile strength and elongation show close agreement. Results shown in Figs. 1 and 2 together with those already reported\* for low-carbon steels rolled cold or at blue heat (300 deg. C.) indicate that the proportional limit of steel which has been largely relieved of stress by suitable treatment decreases with rise in temperature. In highly stressed metal resulting from cold or blue-work or quenching and that having residual stress such as often exists in thin sections of hot finished steel, the proportional limit either remains at approximately its room temperature value over a well defined temperature interval or shows an increase with first rise in temperature.

*Effects of varying proportions of carbon.*—As shown in Fig. 1 the general form of the tensile strength-temperature curves is the same for rolled and normalized metal and for carbon steels of varying carbon content. However, the lower the carbon the lower is the temperature of maximum strength but above about 350 deg. C. the strength of the highest carbon steel drops more

rapidly than that of the others, results which agree with the early work of Howard†.

All three steels have good ductility at temperatures of about 350 deg. C. and above, but brittleness in the blue heat range (250 to 300 deg. C.), as shown by values of reduction of area, increases rapidly with carbon content. Likewise the increase in strength at various temperatures produced by raising carbon from 0.38 to 0.59 per cent is not nearly as great as that resulting from a similar increase from 0.18 to 0.38 per cent. It therefore appears desirable to keep carbon low especially when considering temperatures around 300 deg. C.

*Effect of heat treatment.*—Curves showing the effect of temperature upon tensile properties of 0.33 per cent carbon steel, first water quenched or quenched and tempered, are given in Fig. 2. Comparison with normalized steel shows that the improved properties obtained at ordinary temperatures from quenching and tempering are not maintained at 465 deg. C., but benefits are derived at temperatures up to about 350 deg. C. This is shown by a similar increase in strength at blue heat for both normalized and quenched and tempered samples as well as by the fact that the limit of proportionality does not drop as rapidly with increase in temperature. At the same time values of elongation and reduction of area in the quenched and tempered steel are very nearly equal to and in some cases greater than those in the normalized metal at corresponding temperatures.

Values shown in Fig. 2 for the untempered steel represent combined effects of temperature and variation in properties due to structural changes encountered upon tempering and have been included mainly to show the form of the proportional limit-temperature curve.

### Alloy Steels

*Steel containing 1.25 per cent manganese.*—Increase in manganese in normalized low-carbon steel from the usual proportions to 1.25 per cent does not materially alter the changes in tensile properties with rise in tem-

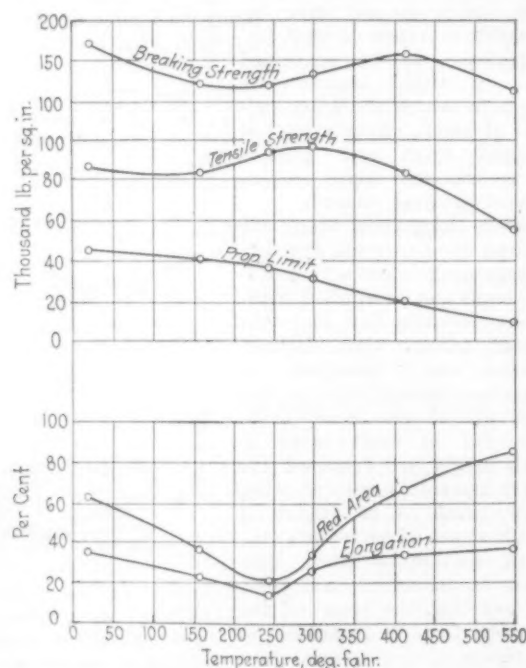


Fig. 3—High temperature tensile properties of normalized carbon-manganese steel. C, 0.38 Mn, 1.26 P, 0.070 S, 0.047 Si, 0.12. Heated 30 min. at 850 deg. C. and air cooled. Breaking strength is unit load at moment of fracture

perature, as is shown in Fig. 3, but produces a somewhat stronger metal without appreciable loss in ductility. The benefits derived from such an increase are, however, greater at temperatures below about 400 deg. C. than above and became generally less as the temperature is increased.

*Nickel steels.*—Addition of 3.50 per cent of nickel

\*Bureau of Standards, Tech. Paper 219.

†J. E. Howard, "Physical Properties of Iron and Steel at Higher Temperatures," THE IRON AGE, April 10, 1890, p. 535.

to normalized medium-low carbon steel raises the proportional limit and tensile strength at room temperatures with only a minor decrease in ductility but these advantages largely disappear at temperatures of about 500 to 550 deg. C. In fact, comparative tests made and already reported [9] show the nickel steel to be some-

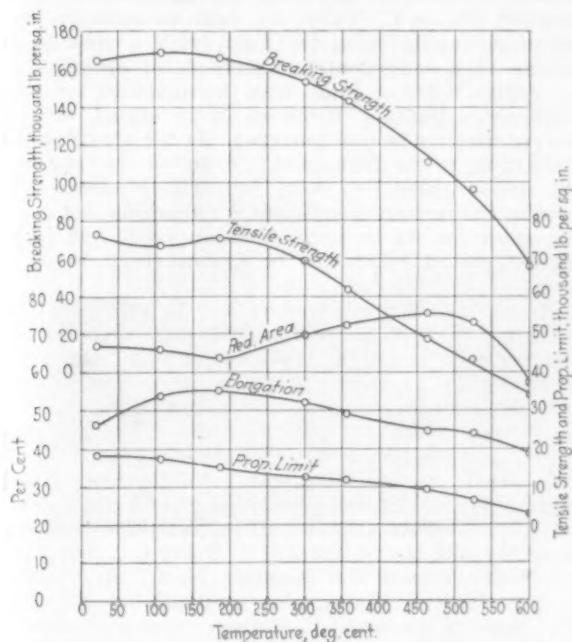


Fig. 4—High temperature tensile properties of 28 per cent nickel steel. C, 0.20 Mn, 0.80 Si, 0.15 Ni, 28.6. Test bars 0.4 in. diameter with 2-in. gage length; first heated to 800 deg. C. for 30 min. and air cooled. Breaking strength is unit load at moment of fracture

what "softer" and more ductile at 550 deg. C. than plain carbon steel of similar carbon content produced under comparable manufacturing conditions. There would therefore seem to be little or no advantage derived from this nickel addition except at slightly elevated temperatures at which quenched and tempered carbon steel also shows superiority over normalized metal.

Curves for 28 per cent nickel steel are given in Fig. 4 and show that the characteristic low limit of proportionality at ordinary temperatures is gradually lowered to a few thousand pounds at 550 to 600 deg. C. While the strength is slightly higher in this temperature range, the ductility as represented by elongation and reduction of area is only about half that of carbon steel of similar carbon content. Likewise no appreciable gain in strength commensurate with the large proportion of added nickel is found at 300 deg. C., but special characteristics such as resistance to certain types of high temperature corrosion and low coefficient of expansion in certain low temperature ranges make this steel of special value.

An interesting feature is the drop in both strength and ductility with temperature rise from 500 to 600 deg. C. A similar effect was observed beginning at lower temperatures in steel of slightly higher nickel content by Bregowsky and Spring [1].

**Chromium steels.**—As noted in a previous report [9] normalized steel containing 1 per cent chromium shows greater resistance to "weakening" by increase in temperature to about 550 deg. C. than either plain carbon or 3.50 per cent nickel steels. To obtain comparisons between alloys of higher chromium content tests were made at 20, 300, and 550 deg. C. on three steels containing respectively 2.9, 5.4 and 10 per cent chromium and 0.08 to 0.15 per cent carbon, as shown in Fig. 5.

These steels, which were prepared at the Bureau of Standards, were melted in magnesia-zircon crucibles in a high frequency induction furnace and ingots about 1½ in. square weighing 1000 to 1200 gms. were chill cast. They were subsequently forged at about 1100 deg. C. to ½ in. flats about 1½ in. in width and then subjected to a high temperature quench from 930 deg. C. to assist in breaking up possible traces of ingotism remaining

after the limited hot reduction. The bars were next heated to 875 deg. C. and cooled in air and round tensile test specimens 0.4 in. in diameter in reduced section prepared.

Unfortunately the silicon content varies between the low and two higher chromium steels, so that the results shown in Fig. 5 represent the combined effects of varying proportions of both elements. However, the general effect of chromium is to retard or minimize "softening" around 550 deg. C., a feature which will be referred to again in a subsequent section of this report. The 5.4 and 10 per cent chromium steels are air hardening and show high strength values which can be modified by change in initial temperature of cooling and which would be materially reduced upon long exposure at elevated temperatures.

**Quenching of stainless steel vs. high temperature tensile properties.**—Tests were also made to show the effect of varying heat treatment upon one of the most important industrial air hardening alloys in the iron-carbon-chromium series for high temperature service, namely, 13 per cent chromium or so-called stainless steel. Results will not, however, be reproduced, as these data have already been published in THE IRON AGE.\* This alloy has high strength and limit of proportionality in the range about 550 deg. C. where most carbon and structural alloy steels show a decided "weakening" and at the same time it retains good ductility. However,

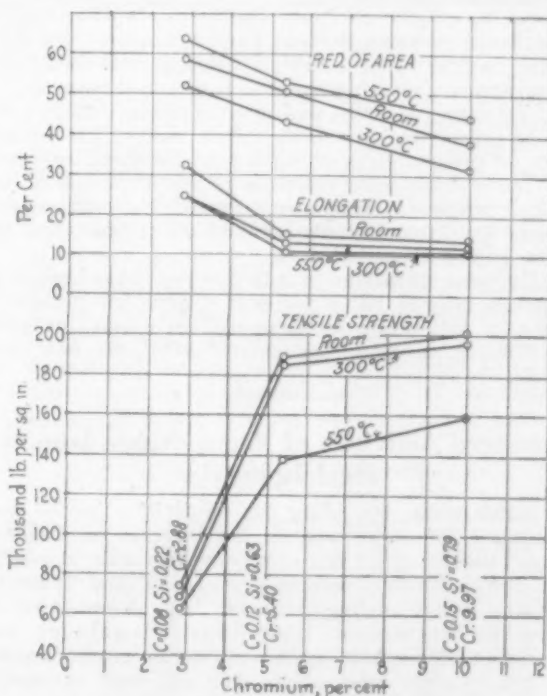


Fig. 5—Tensile properties of various chromium and chromium-silicon steel at 20, 300 and 550 deg. C. Compositions:

C, 0.08	Mn, 0.57	P, 0.014	S, 0.042	Si, 0.22	Cr, 2.88
0.12	0.64	0.010	0.030	0.63	5.40
0.15	0.59	0.005	0.054	0.79	9.97

Refer to text for complete preliminary heat treatments

its advantages at lower temperatures, between 20 and 300 deg. C. over quenched and tempered carbon steel of similar carbon content are not so marked.

(To be concluded in THE IRON AGE, Aug. 2)

With the starting up of one blast furnace and several open-hearth furnaces at the plant of the British Empire Steel Corporation, Sydney, N. S., on July 16, and the determination of the company to operate coal mines at Glace Bay, the strike situation there is taking on a new and more active phase. That there will be resistance to the operation of trains is assured and preparations are being made to provide a strong military escort. A general tightening up is reported. The police and military forces have a drag net over the whole area. Around reserve collieries a searchlight is playing all night, picking out small groups where pickets have gathered or miners congregate to talk matters over.

\*"Stainless Steel at High Temperatures," THE IRON AGE, 110, No. 7, p. 404 (Aug. 17, 1922).



## BUSY AT INDIANAPOLIS

### Continued Activity of Metal Working Industries— Building Breaks Records

INDIANAPOLIS, July 23.—With the exception of the automotive interests, the metal working industries of Indianapolis are still running at about the same rate that has been maintained for the past three or four months. The demand for automobiles has fallen off to some extent, and production programs have been curtailed, but the manufacturers state that this is nothing unusual at this time of year, and they are making preparations for fall programs which call for practically the same rate of operations as was maintained during the spring months. Many of the manufacturers contemplate increasing the percentage of closed models this fall, and some fears are being entertained that body manufacturers, who are reported to be heavily booked for the closed models, will be unable to take care of the demand.

With the exception of those foundries catering largely to the automobile trade, there has been little decrease in the melt of pig iron. Chain manufacturers are very busy, with some of them reporting orders booked for many months ahead. There has also been no appreciable decline in the demand for drop forgings, although the hot weather is having the effect of diminishing the output. Saw manufacturers are also enjoying very heavy business, and on hand saw orders are from three to four months behind. Recent standardization programs are working out well in the saw manufacturing industry. Machine tool manufacturers report a let-up in orders during the past four weeks, and curtailment of production is expected unless demand improves.

There is no acute shortage of either skilled or unskilled workers. Workmen released from automobile plants have found employment in other lines, and the labor supply about balances.

Building operations to date this year have broken all previous records, but a decrease is expected in the second half. Plans now maturing call for a heavy program of building to commence shortly after the new year opens.

### Increased Activities of Pennsylvania Iron and Steel Industries

HARRISBURG, PA., July 23.—Activities in the iron and steel industries are on the increase in Pennsylvania, according to the semi-monthly labor report to Dr. Royal Meeker, secretary of Labor and Industry, for the period ending July 15. An improvement is noted in the common labor situation, although machinists and machine operators are in great demand.

Erie reports most of its iron and steel companies are strengthening their organizations by weeding out inefficient workers. There is no urgent demand for skilled mechanics, although they can be placed without difficulty. A slight surplus of semi-skilled workers is reported.

Harrisburg reports that the supply of qualified workers does not cover the number lost through dismissals, separations and otherwise. Several larger concerns in the district recently agreed to reduce the number of working days from seven to six for men employed in the gas-producing and open-hearth departments and such others as formerly required seven-day service. This is expected to reduce the turnover of labor.

Johnstown reports an improvement in the labor situation over the first of the month. All plants are operating at capacity where efficient employees can be obtained. McKeesport says its plants are operating at as near capacity as is possible, in view of the shortage of skilled and semi-skilled workmen.

The demand for workmen in the Pittsburgh district is relatively good, and there are no indications of any marked change in the immediate future. Car companies and railroads are said to be increasing their forces. The supply of workmen in the iron and steel trades generally is somewhat short of the demand.

### Walsh & McGee's Bar Mill at Newark, N. J., Nearly Completed

The Walsh & McGee Steel Co., which was organized some time ago to manufacture rolled products, is completing the construction of a mill at 646 Doremus Avenue, Newark, N. J. Since the organization of the company, Phillip C. Walsh, 3d, made an extensive survey of rolling mills in the East, with a view to installing such equipment and methods of operation as will permit running a mill with the minimum labor requirement. Heating furnaces, it is stated, will be charged directly from a conveyor. In the charging and discharging of the furnace it is expected that one man will suffice where two were formerly required. The depth of the furnace is sufficient for charging and drawing operations to be done simultaneously. It is estimated that a billet will be drawn every 10 or 12 seconds.

Small bars in various sizes will be rolled and the initial capacity of the mill will be approximately 600 tons per month. A branch line has been laid to the plant affording excellent shipment by rail in addition to docking facilities on an 800-ft. water frontage on the Passaic River. If present plans carry, the plant will be on a production basis within a few weeks.

Harry L. McGee, who, with John Havemeyer, was founder of the Concrete Steel Co., New York, is associated in the enterprise with Mr. Walsh, who is also connected with the National Steel Roller Co., New York, and Walsh Sons & Co., Newark, N. J. Mr. Walsh's brother, William Walsh, also is associated with him. The offices of the Walsh & McGee company are located at 2 Rector Street, New York.

### June Shipments of Clay Fire and Silica Brick Show a Loss

Statistics compiled by the Refractories Manufacturers' Association, Frederic W. Donahoe, secretary, Oliver Building, Pittsburgh, for June show a loss of about 8 per cent in that month's business in clay fire brick as compared with the previous month, and about 7 per cent in silica brick by comparison with May. With the same capacity reporting for both months, the figures show that clay fire brick shipments for June were equal to 76 per cent of monthly economical producing capacity, as compared with 84 per cent in May, while silica brick shipments which in May were 66 per cent of monthly economical producing capacity were down to 59 per cent for June. Shipments rather than new orders tell the real story of business, since, as is indicated in the table, orders are subject to cancellation. There was a slight loss of production in June in both classes of brick as compared with May, that in clay fire brick being 4 per cent and that in silica brick 5 per cent. Stocks of clay fire brick at the end of June were 4 per cent greater than at the end of May, but stocks of silica brick were less by 3 per cent than that of one month before. Net new business in clay fire brick decreased 9 per cent, but that in silica brick gained by 4 per cent.

The figures in detail, in 9-in. equivalents, figures in parentheses being the percentages to monthly economical producing capacity, follow:

Clay Fire Brick			
	June		May
Capacity reporting ...	75,341,977		75,341,977
Stock, first of month..	152,193,088	(201)	151,313,259 (200)
Production .....	61,165,622	(81)	64,398,108 (85)
Shipments .....	57,785,328	(76)	63,511,279 (84)
Stock, end of month...	155,575,332	(205)	152,193,088 (201)
New orders .....	44,875,776	(59)	50,994,943 (67)
Cancellations .....	594,192	(1)	165,219 (0)
Net new business.....	44,281,584	(58)	50,829,724 (67)
Unfilled orders .....	89,365,766	(118)	102,869,510 (136)
Silica Brick			
Capacity reporting ...	22,565,500		22,565,500
Stock, first of month..	34,960,553	(155)	36,055,506 (160)
Production .....	12,608,422	(56)	13,783,679 (61)
Shipments .....	13,258,749	(59)	14,878,632 (66)
Stock, end of month...	34,310,226	(152)	34,960,553 (155)
New orders .....	10,293,682	(46)	9,955,865 (44)
Cancellations .....	1,000	(0)	406,243 (2)
Net new business.....	10,292,682	(46)	9,549,622 (42)
Unfilled orders .....	34,927,877	(155)	37,892,944 (168)



# A French Steel Plant Built Since the War

Schneider Works at Caen in Normandy Originally a  
Thyssen Enterprise—Native Ores and British Fuel  
Used—Basic Bessemer and Open-Hearth Steels

BY CAPT. GODFREY L. CARDEN



**B**ORINGS made about fifteen years ago disclosed the existence of much iron ore in northwestern France. The principal field was located near the old town of Caen, in Normandy. Today an iron and steel plant employing 4500 men is in full operation at Mondeville, distant about six kilometers from Caen.

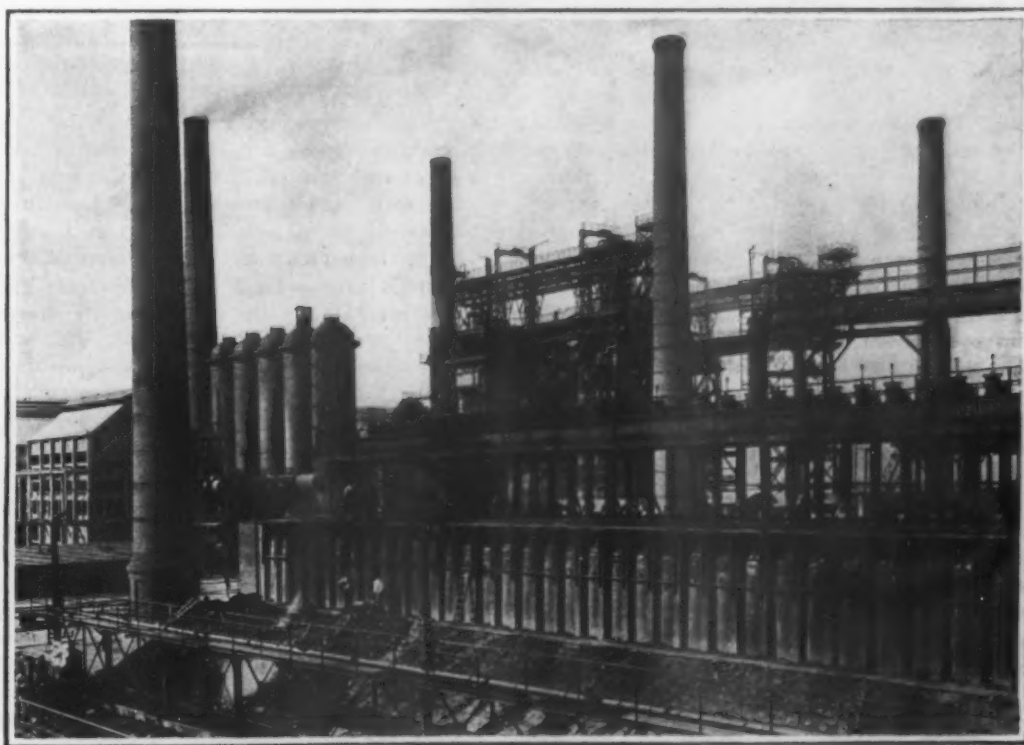
The owner of the new works is Société Normande de Metallurgie. The major portion of the capital is in the hands of Messrs. Schneider of Le Creusôt. These interests succeeded the Société des Hauts-Fourneaux et Acieries de Caen, under which name the present works were started. The moving spirit in the latter firm was Thyssen, of Mulheim-on-the-Ruhr.

It was Thyssen who first saw the possibilities for a steel works in Normandy. Combining German with

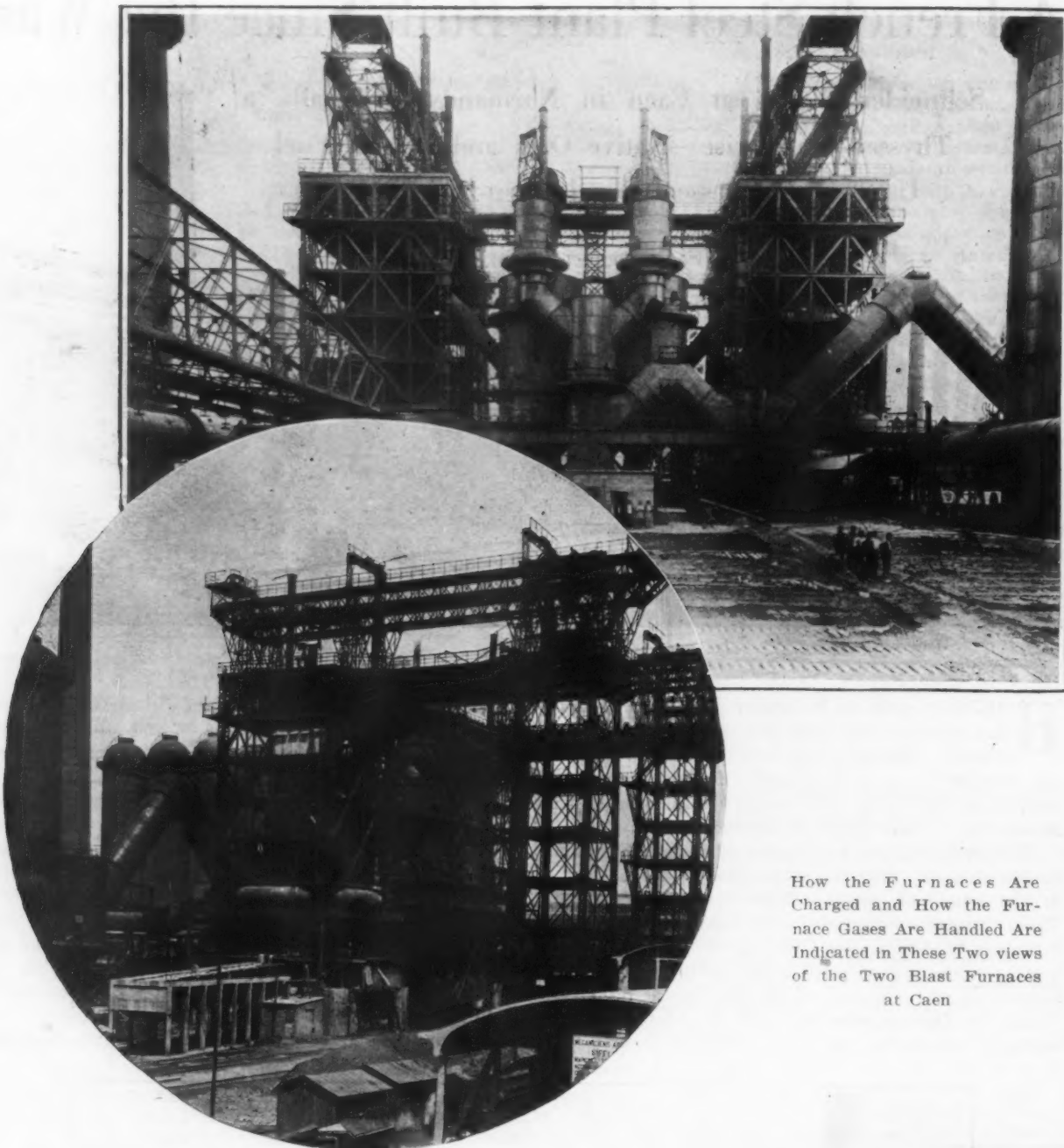
French capital he acquired holdings in the Caen region and began the erection of furnaces and mill buildings. No considerable progress had been made when the World War put an end to his activities.

The major portion of the present plant was constructed during the war. Here is one French operation in which expansion and development have continued after the close of hostilities. I visited the Mondeville works some weeks ago and was afforded every facility by M. Morette, the director-general; M. Homery, assistant; M. Legelin, in charge of blast furnaces; M. Tripier, head of the technical staff; M. Bullet, in charge of fuel utilization, and M. Paquet, in charge of rolling mills.

To circle the Mondeville mills inclosure is to traverse



Beyond the Coke Ovens May Be Seen the Network of Structural Shapes Conspicuous in This Blast Furnace Installation and One of the Groups of Five Hot Stoves



How the Furnaces Are Charged and How the Furnace Gases Are Handled Are Indicated in These Two Views of the Two Blast Furnaces at Caen

a distance of approximately seven kilometers, and within the inclosure there are 50 kilometers of railroad tracks. The site of the works is a commanding plateau overlooking the valley of the Orne. Approximately 160 hectares (1 hectare equals 2.47 acres) comprise the works area on this plateau. From this eminence a wonderful view is obtained of the surrounding country. Caen is seen in the distance, while the white metal roads of the region are traceable by the eye for miles away in many directions. The Orne touches the base of the plateau, and running parallel with that stream and close to it is seen the Canal Maritime. Between the Orne and the canal the company owns a further area of 200 hectares on which runs its railroad connections with the state railroads and the harbor. From the steel works to the craft in the company's own port the distance is about a mile.

It requires 50,000 tons of coal per month to keep the Mondeville plant running at full capacity, and practically all coal used is brought in from England. The canal from the sea is about 10 miles long and at present admits steamers of 2500 tons carrying capacity. The maximum draft is 17 ft. Canal improvements now in progress aim to admit 5000-ton steamers to the port of Caen. The Orne reaches the sea at Quistreham. Normandy ore is the principal return freight

for steamers bringing in coal. In addition, the Mondeville works are shipping abroad about 50 per cent of their output, mainly to England. Apart from steel rails, these shipments are mostly billets and blooms.

The transportation cost between Caen port and the mills ranges from 2 to 3 francs. This is cheap when compared with transportation charges imposed on steel works in eastern France. Between Antwerp, for example, and many of the works in eastern France, the rail charges are approximately 30 francs per ton.

#### Coal and Coke

There is no coal at Caen, and therefore it is found advantageous to import coal from England, since steamers can come directly to the port of Caen, thus rendering transportation cheap. Coal destined for coke is discharged at Caen into 50-ton cars, and is unloaded automatically at the works into pits of 25,000 tons capacity. The coke produced is used for the works furnaces and a surplus is sold. The present output is approximately 10,000 tons per 10 days. This production is obtained from 14,000 tons of coal, wet, as received from the cars.

There are six batteries, each comprising 42 ovens of 10 tons capacity. Five batteries were at work at



the time of my visit, and the above production is being secured with these five groups. About 200 ovens have been working on an average every day. The time of coking is about 30 hours, since 160 chambers are loaded daily ( $\frac{24 \text{ hr.} \times 200}{160} = 30 \text{ hr.}$ ) The maximum

output of six batteries is rated at 1500 tons of coke per day. The Société Franco-Belge de Tours type of coke oven is used.

The coke oven gas available is used for the open-hearth and soaking pit furnaces, being mixed with a convenient proportion of blast furnace gas.

The Ruhr occupation having shut off the flow of German coke to both France and Belgium, Mondeville is being called upon to furnish more coke for the French market. The demand has increased appreciably in recent months. The price of English coal at the time of my visit was about 50 shillings per ton.

The stopping of coal from the Ruhr has been felt by the entire steel industries of eastern France. French mines as destroyed by the Germans are not yet in condition to serve French wants, and to restore these mines as sources of supply will take several years yet. The Lens mines were damaged most and these mines were regarded as important adjuncts of the steel industry.

**Blast Furnaces**

There are two blast furnaces at Mondeville with a rated capacity of 400 tons per day each. In actual

practice, the total daily production is around 700 tons. The principal dimensions of the furnaces are: Total height, 89 ft. 6 in.; hearth diameter, 15 ft. 5 in.; top diameter, 15 ft. 1 in.; total volume, 606 cu. m., or 21,250 cu. ft. The entire operation in connection with discharge of ore and charging is automatically effected under electric control. Each furnace is equipped with five Cowper stoves. The blast pressure may vary from 45 to 60 m. of mercury ( $8\frac{1}{2}$  to  $10\frac{1}{4}$  lb. per sq. in.). The metal for steel making is conveyed in liquid state by 30-ton ladle cars. Blast furnace slag is utilized in the making of cement and brick, or is used for ballast. The gas from the furnaces, after cleaning, is employed in boiler heating, also in the steel furnaces, and as power for the gas engines in the central power station.

The Normandy ore varies according to the mines from which it is taken, but generally it runs about 44 per cent iron. Ores from the May and Saint-Andre mines run about 15 per cent silica. The Saumont mine controlled by the Société Normande de Metallurgie furnishes an oolitic carbonate which after calcination has about the following composition:

Fe .....	45 to 47 per cent
SiO <sub>2</sub> .....	19 to 17 per cent
Al <sub>2</sub> O <sub>3</sub> .....	5 to 4 per cent
P .....	0.8 to 0.7 per cent

I was assured that there was ample lime available in the vicinity of Caen. I state this because I heard some doubts expressed in this respect.

The Open - Hearth Furnaces and Bessemer Converters, Together With a 700-Ton Wellman Mixer, Are Located in a Building 886 Ft. Long



It is found that the Normandy ores are well adapted to the manufacture of Thomas and foundry pig irons. A common mixture consists of 60 per cent crude and 40 per cent Saumont calcined ore. From these ores the Mondeville furnaces have been able to meet pig iron specifications calling for 0.5 to 0.9 per cent silicon, 1 to 1.5 per cent manganese and 1.8 per cent phosphorus, this latter being secured by the use of a higher phosphorus limestone from the department of La Somme. By an addition of calcined pyrite, foundry pig iron of the Cleveland type containing 1 to 1.3 per cent phosphorus is secured, which satisfies the British market. The Mondeville works import about 700 tons of manganese ore per month.

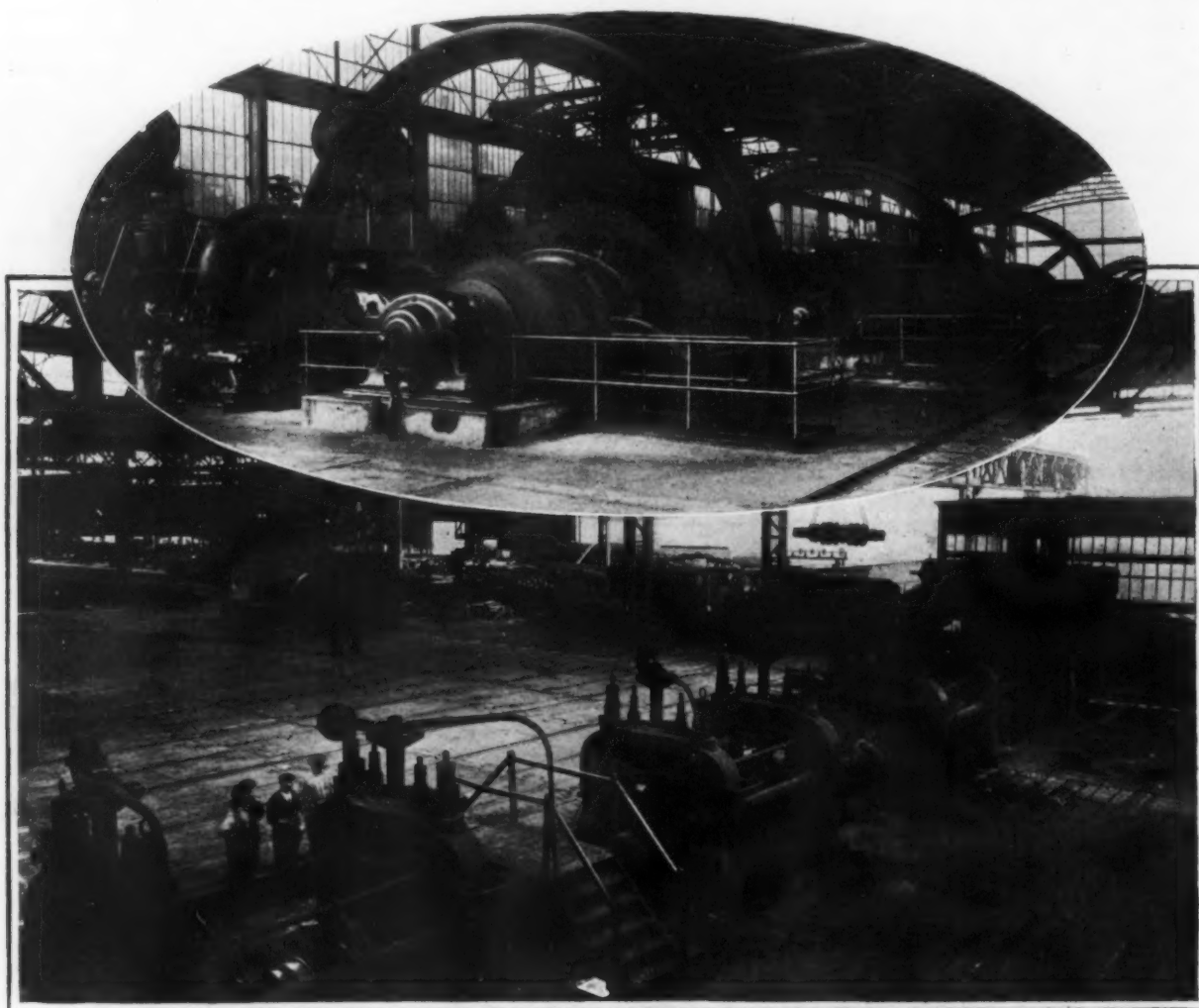
#### Bessemer and Open-Hearth Furnaces

The Siemens-Martin and the Thomas furnaces are housed in a building 270 m. (886 ft.) long. Side by

ably higher, though early in the year the market was as low as 200 francs. Scrap has always been in demand in France because the French territory lacks in pig iron. In addition, the Germans in the latter part of last year came into the market and absorbed much scrap. Now that France is short both in coal and coke, she must resort more than ever to the basic open-hearth process and to the use of higher percentages of scrap.

#### Central Power Station

The central power station is located in a building 200 m. long. The motors in service are the product of the Société Alsacienne de Constructions Mecaniques, Belfort. Two gas engines of 4000 and 5800 hp. were at work on 4000-kw. alternators. The gas engines were made by the same Belfort shops. These engines work double-tandem, two engines to one motor, and



Above the Rolling Mills for the Lighter Products is a View of the Three Blast Furnace Gas Engines, Two Built by the Schneider Works at Le Creusot and One by Thyssen at Mulheim on the Ruhr

side are five Martin furnaces of 30 tons capacity each, operating with gas from the blast furnaces and the coke ovens or from 10 Hilger gas producers. The basic Bessemer plant has been laid out for five 30-ton converters, three of which are in actual service. There is also in the same building a Wellman mixer of 700 tons capacity. By using this mixer as a reservoir, metal is accumulated in the stoppage of basic Bessemer operations on Sunday. The steel furnace building is the largest single structure in the works. It is commanded by a 60-ton traveling crane. Slag from the Thomas furnaces is sold in the market for agricultural purposes.

Scrap was costing the Mondeville works last spring about 250 francs per ton, and at times it goes consider-

are reported as giving excellent results. Blast furnace gas is used. I noticed quite a little play on the engine beds. This is purposely allowed, being deemed good practice, since it affords a certain amount of elasticity to the shock.

In addition to the gas engines there are three turbines, one of 5000 kw. and two of 3000 kw. each. The turbines furnish current for lighting and, when necessary, are utilized to help out the gas motors. There are also two turbines of 3000 kw. each used in connection with the blowers for furnaces, and one turbine rated at 400 to 500 kw. to furnish the starter blast for the furnaces. Finally, there are installed three motors of about 2800 kw. operated by gas engines which serve to blow the blast furnaces and steel con-



verters. Two of these last mentioned engines are of the single type and one double. Thyssen built two of the three and Schneider the third one.

#### Rolling Mills

Two mills are now in operation at the Mondeville works: One reversible duo, 850 x 900 mm. (33½ in. x 35½ in.), and one semi-continuous mill of 300 x 400 mm. (11¾ x 15¾ in.). Room has been provided between them for intermediate size mills and between the furnace building and the main mill for an independent blooming mill to be erected. The main mill consists of four stands; the first, which may be run independently by one of the motors, is used for blooming; the second for shaping, and the third for finishing, enabling the rolling of bars up to 110 m. (360 ft.) long. A fourth stand is used for rolling billets for the market.

The main rolling mills are producing at present between 18,000 and 20,000 tons of finished product monthly. Only one type of ingot is used, whether of Martin or Thomas steel, the size being 3½ tons. A full range of standard and tramway rails is rolled, and in addition the output includes channels, joists, billets from 2 to 10 in., and sheet bars. The list will be increased later by the addition of plates and angles.

Sheet bars are being rolled of 6, 8 and 10 in. width, and of varying thicknesses under 2 in. At the time of my visit considerable work was being done on sheet bars and 2-in. billets for England.

#### Rolling Mill Power Station

For driving the mills the current, 3-phase, coming from the central station at 5000 volts (3200 hp., 50 cycles, 336 to 420 revolutions, Belfort motor) is transformed in a sub-station into a continuous current by two Ilgner groups having a flywheel of 75 tons weight. This current serves both the reversible train and the semi-continuous train. When necessary, a third Ilgner

group having a flywheel of 40 tons is used for driving the small mill.

There are two motors in the rolling mill, one for blooming and one for finishing. The total continuous current is made available here. The power building for the rolling mill is served by a 100-ton traveling crane. This building was erected since the war.

At this writing there are passed as a maximum about 300 ingots per day, working over a period of three shifts of 8 hours each. The small or semi-continuous mill produces about 4000 tons of output per month. Because of this heavy demand when the mills are all working a third heavy gas engine will be installed to meet this and future requirements.

Many of the workmen now employed at Mondeville are Russians. These men are remnants from the Russian forces brought to the Western front during the war by way of Vladivostok and the Suez Canal, while others are said to be more recent acquisitions following the disbanding of Denikin forces.

Apart from the proximity of the rich ore fields, the Mondeville plant is in a favored position for export trade by reason of its water connections. Pending the deepening of the canal, as referred to above, the present practice is to barge the steel products to Havre and load there in deep-draft vessels for long voyages.

Mondeville is profiting at this period of railroad tieups in drawing on England for coal, and the fact that 50 per cent of the output of the plant is for English orders indicates a certain amount of independence of Continental conditions. Mondeville, in a way, is profiting from the situation in the Ruhr much after the manner of English mills. So long as English coal is available, Mondeville can carry on and expand. Indeed, what may be seen there now is only a first step on the way to future developments, for which ample space has been provided.

## PURCHASE EXPLAINED

### Youngstown Sheet & Tube Co. Tells Employees of Merger of Steel & Tube Co. of America

In a communication to employees, the Youngstown Sheet & Tube Co., Youngstown, comments on the purchase of the Steel & Tube Co., Chicago, stating:

The transaction by which the Youngstown Sheet & Tube Co. became the owner of all the assets of the Steel & Tube Co. of America was completed at the New York offices of this company when the property was formally transferred by officials of Steel & Tube to President Campbell and Treasurer Morris, representing this company. In payment a certified check for \$33,000,000 was handed to the sellers, and bond obligations amounting to approximately \$22,000,000 more were assumed by this company.

Formal possession of the properties was taken by W. G. Reilly, acting for the company at Chicago at the same time, and the Steel & Tube plants and properties of all kinds are now being operated by this company. The deal was made as of Nov. 1, 1922, and the Steel & Tube Co. of America has been operated since that time for the account of the Youngstown Sheet & Tube Co.

This is one of the important transactions in the steel industry in recent years. The properties and plants secured by this company are located in eight States, consisting of very extensive and valuable holdings of iron ore, including the celebrated Newport and Anvil mines on the Gogebic Range, extensive zinc ore properties, coal properties in West Virginia, Kentucky and Ohio, blast furnaces and ore mines at Maysville, Wis., five blast furnaces at the Iroquois plant, South Chicago; the Mark Works at Indiana Harbor, consisting of by-product coke ovens, blast furnace, Bessemer and open-hearth steel plants, skelp and pipe mills; a tube mill plant at Zanesville, Ohio; an electric steel plant and rolling mills at Kalamazoo, Mich.; tube mills at Evanston, Ill., and other miscellaneous properties. The most important of these plants are located on excellent lake-front harbors, with an abundance of land available for extensions.

This purchase gives the Youngstown Sheet & Tube Co. advantages in the diversification of its products and the

geographical location of its plants for the economical distribution of these products which will place it in a more favorable position to serve the market. It also makes this company, in point of raw materials owned and productive capacity, the third largest steel producing concern in the United States and one of the largest in the world.

It is expected that the consolidation of the newly acquired properties under the management of the Youngstown Sheet & Tube Co. will proceed in much the same manner as that of the Brier Hill properties, although it is a larger and more complicated proposition and will naturally require more time.

### Automobile Production in June

WASHINGTON, July 24.—The Department of Commerce announces June production of automobiles, based on figures received by the Bureau of the Census in cooperation with the National Automobile Chamber of Commerce and covering approximately 90 passenger-car and 80 truck manufacturers each month, as follows:

	Automobile Production (Number of Machines)			
	Passenger Cars		Trucks	
	1923	1922	1923	1922
January .....	223,706	81,693	19,398	9,416
February .....	254,650	109,171	21,817	13,195
March .....	319,638	152,959	34,681	19,761
April .....	344,474	197,216	37,527	22,342
May .....	350,180	232,431	43,012	23,788
June .....	336,317	263,027	40,565	25,984

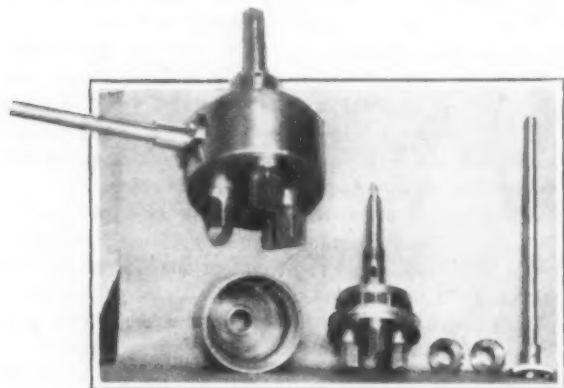
\*Revised.

The Norwegian Industries Fair, to be held in Christiania, Norway, from Sept. 2 to 9, is expected to feature prominently in four classifications Norwegian products in metals. Officials announce that reservations for exhibits are booked to an extent 20 per cent greater than the bookings of 1922. Those interested should address the nearest Norwegian consulate.

### Tool for Milling Hexagons on Valves

The Geometric Milling Tool Co., 110 North Jefferson Street, Chicago, has put on the market the milling tool illustrated, which is primarily intended for use in valve manufacture but may also be applied to the production of locomotive nuts, oil cups and gages.

The purpose of the tool is to drill, face and mill the six sides of a hexagon in one operation. This is accomplished by a simple planetary motion of three cutters, each having two cutting edges. These cutters revolve and also rotate on a fixed circle, thus generat-



Hexagon Milling Tool for Use in Manufacturing Valves. The six sides of the hexagon are produced by the planetary motion of these cutters, each of which has two cutting edges. The parts of the tool are shown in the upper view and the layout of cutters immediately above

ing a cycloid curve, as shown in the illustration, which also indicates there is a slight curvature to the sides of the hexagon. This, however, is said to be so slight that it is not objectionable. The tool can be operated in an ordinary drill press, in conjunction with a simple fixture to hold the work and to guide the casing or body of the tool. The casing is held stationary by means of an arm, gib or pilot pin, permitting it to move up and down, but not to rotate.

In setting up the tool, it is indexed to conform with the outline, or center line, of the hexagon to be milled and remains permanently fixed thereafter. The tool is equipped with demountable and interchangeable cutters, which are easily sharpened and replaced, and is sturdily built of materials selected for their respective purposes. It is bronze-bushed throughout. The tool is made in standard pipe sizes of sizes  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1 and  $1\frac{1}{2}$  in., and can be equipped with special cutters if desired.

The tool is said to have drilled, faced and milled a standard valve body in about 15 sec., running at 180 r.p.m., and without leaving burrs. Slow wear on the cutter is a feature emphasized. A saving of from one-half to several minutes per unit, depending upon the manufacturer's facilities, is accomplished by the use of this tool, it is asserted, and production costs can be cut from 20 to 30 per cent. The tool has been in use for some time, both in its experimental stage and actual production.

### Nick-Bend Tests of Wrought Iron

Previous work on this subject by the Bureau of Standards has shown that the character of the crystalline areas which are often obtained when wrought iron bars are fractured by the nick-bend test is determined largely by the relative size and distribution of the slag threads. In general the smaller the slag threads and the more uniformly they are distributed, the greater is the tendency for crystalline areas to occur.

In order to confirm this tentative conclusion, considerable attention has been given to the nick-bend test of open-hearth iron. It was noticed that the full-sized bars, broken in the regular manner of the nick-bend test, invariably gave crystalline fractures. The observations previously made on the difference in the nature of the crystalline break on the tension and compression sides of the bar were also confirmed. On the other hand, a large number of the small impact specimens cut from such bars and tested by the Izod and Charpy methods gave silky fractures. Evidently, the nick-bend test should not be considered merely as an impact test of the Izod and Charpy types on a large scale.

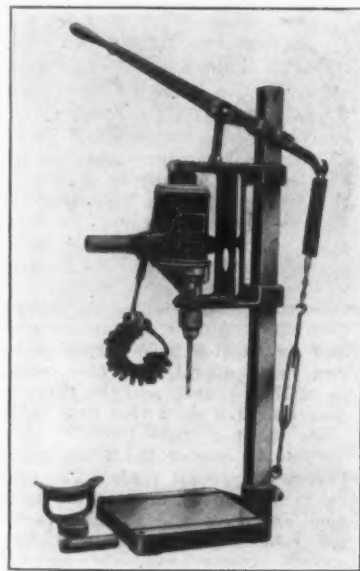
By annealing impact specimens of the open-hearth iron at high temperatures up to and including 1150 deg. C., which renders the grain size larger and more uniform, the fractures obtained in the impact test were very similar to those in the simple nick-bend test of the untreated iron. However, some of the bars annealed at high temperatures still showed a silky fracture after the Charpy impact test. It appears probable, therefore, that the resistance of the iron to shock is not determined simply and wholly by the grain size; but that other features, such as the form of the grain, particularly the character of the junction between neighboring grains, may affect the results. Microscopic examinations of fractured specimens are being made to throw light upon this.

### Bench Stand for Portable Drill

The bench stand illustrated, for use in connection with portable drills, permitting them to be used as bench machines, has been added to the line of the Standard Electric Tool Co., Cincinnati.

The device will accommodate  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{9}{16}$ ,  $\frac{3}{4}$ ,  $\frac{1}{2}$  and  $\frac{3}{8}$ -in. capacity machines. Drills may be conveniently detached from the stand by means of the brackets shown, and the brackets may be raised or lowered by means of the bolt holding the lever. Quick return tension may be adjusted to any point desired, and the vertical lever is made long enough to give high pressure, permitting of quick operation. The vertical column is of solid steel,  $1\frac{1}{4}$  in. square. The base is provided with T-slots, as shown, for fastening of the work.

The vertical adjustment of the drill is 9 in., and the distance from the column to center of the spindle is 6 in. The vertical travel of the drill when operated by the lever is  $4\frac{1}{2}$  in. The horizontal adjustment is 360 deg. The height of the stand from the bottom of the base to top of column is 36 in. The weight is 85 lb. net. The drill furnished for this stand includes regular equipment of spade handle and lamp socket cord.



Portable Electric Drill Mounted in Bench Stand. The vertical column is of solid steel,  $1\frac{1}{4}$  in. square



## NEW METAL SAWING MACHINE

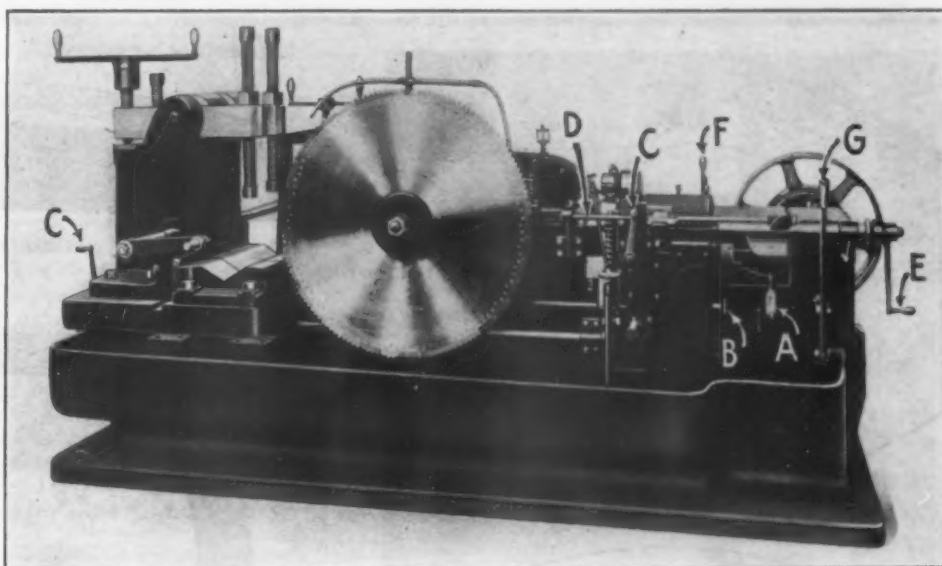
### Cold Saw with Capacity for 12-In. Square Bars— Hardened Gears Used—Convenient Control

The Cochrane-Bly Co., Rochester, N. Y., has placed on the market a cold sawing machine having a capacity for 13-in. round stock, 12-in. square bars, 10 x 15-in. rectangular sections and 18-in. I-beams.

The features of the machine include setting of the bed into a deep pan, as shown, the pan catching the oil and chips, and draining the oil into a large reservoir from which it is recirculated. The bed of the machine is scraped to precision surface plates to produce true surfaces for the saw carriage. The saw arbor is 6 in. in diameter, is hardened and ground and fitted into a solid bearing. Bolted joints in the carriage bearing have been eliminated.

Eleven feeds from  $\frac{1}{2}$  to  $2\frac{1}{2}$  in. per min. have been provided. The feed screw is directly in line with

Cold Saw for Cutting 12-In. Square and 13-In. Round Stock. The bed is set into a deep pan, as shown, which catches oil and chips. The bed is scraped to precision surface plates, and the saw arbor is hardened and ground and fitted into a solid bearing. Three changes of speed and 11 changes of feed are available. The power required at 50 ft. per min.,  $\frac{1}{2}$  in. and  $2\frac{1}{2}$  in. feed is 5.37 and 15.51 hp. respectively



the center of the saw arbor and is placed as close as possible to the saw blade to bring the feed pressure as nearly as possible in line with the resistance of the saw. The nut on the feed screw is split and is adjustable endwise to eliminate lost motion. Lost motion between the screw and gear box is taken up by adjustable hardened steel nuts. The feed screw is driven by worm and worm gear and compound spur gears. The tumbler A gives six changes, which are doubled by sliding gears B into mesh with gears on the worm shaft. The feed is started, stopped and reversed from the front or back of the machine by levers C C. A double pawl holds the clutch block in neutral position or in engagement with the feed gear, or permits it to engage with the reverse gear. The pawls are lifted by means of a rack and pinion arrangement operated by lever C, movement of which to the left raises the feed pawl, tripping the machine into neutral. Further movement of the lever raises the neutral pawl, tripping the machine into reverse, which automatically returns the saw carriage at high speed to a point determined by an adjustable stop collar on the trip rod D. Another adjustable stop collar serves to lift both pawls at the same time, automatically tripping the machine from feed to reverse. The lever C is moved to the right to release the reverse clutch and engage the feed clutch. The carriage may be adjusted to and from the work by means of cranks E at either end of the machine.

The machine has three cutting speeds, 30, 40 and 50 ft. per min. Speed changes are made by sliding a cone of gears on the driving shaft by means of lever F. The saw blade is 37 in. in diameter and  $\frac{9}{32}$  in. thick. The machine is driven by a 24-in. friction clutch pulley. The clutch is controlled by levers G at the front and rear of the machine. The drive shaft has ring-oiled bearings.

The vise is equipped with double clamping screws, as shown, to hold the stock at two points. A vise having air operated clamps is available. A stock feeding device is regularly provided. The stock support carriage is moved by means of a chain and sprocket and a crank which is back geared to the sprocket shaft. One operator may easily adjust a 12 x 12 in. billet in the vise. The top of the yoke on the carriage is hinged to facilitate placing stock in the machine.

All gears, except worm gears, are of steel and run in oil. The miter gears on the drive shaft, the arbor gear and intermediate gear in the worm gear box on the carriage, are of nickel steel, case-hardened. The pinions for these gears are of chrome-nickel steel, hardened. The driving worm, which is of hardened steel, is provided with a heavy ball thrust bearing.

Tests made by the company to determine the power required at various speeds and feeds, cutting an 8-in. billet of 40 carbon steel, are said to show that 4.80 hp. was required at a speed of 30 ft. per min. with  $\frac{1}{2}$  in. per min. feed. At the same cutting speed with

a  $2\frac{1}{2}$  in. feed an average of 14.48 hp. was required. At 40 ft. per min. speed,  $\frac{1}{2}$  in. and  $2\frac{1}{2}$  in. feed, the power was 5.13 and 14.71 hp. respectively. With a cutting speed of 50 ft. per min. and feeds of  $\frac{1}{2}$  and  $2\frac{1}{2}$  in. per min., the average horsepower required was 5.37 and 15.51 respectively.

The area of the work table is  $27\frac{1}{2}$  x 30 in., and the height 24 in. A 20 hp., 860 to 900 r.p.m. motor is recommended. The floor space required for the belt-driven machine is 71 x 129 in. and for the motor-driven machine, 89 x 129 in. The weight is 12,600 lb., net. The machine is designated as the No. 7.

### To Build 40 Wilputte Ovens at Rosita, Mexico

The Wilputte Coke Oven Corporation, 469 Fifth Avenue, New York, will install 40 Wilputte regenerative coke ovens, with a by-product and benzol plant at Rosita, in the State of Coahuila, Mexico. William Hutton Blauvelt, 120 Broadway, New York, is the consulting engineer, representing the American Smelting & Refining Co. Coal will be obtained from the company's mines at Rosita. The plans include the installation of a power house, a new shaft and hoist and a coal washer, which has been designed under the direction of G. P. Bartholomew, general manager of the coal mining department of the company.

The coke produced in the oven plant will be used in the smelters of the company and in the general trade. The motor benzol will be sold locally, and the tar and ammonia will go into the general market. The gas will be used in a zinc smelter, which the company will erect at Rosita.

The Franklin-Moore Co., Winsted, Conn., has increased its operating schedule to 10 hours per day.

# Rolling Steel and Non-ferrous Rings

How a Weldless Product, Such As Ring Gear Blanks, Is  
Made on a Commercial Scale at  
Cleveland

**R**OLLED rings for gear blanks and for bearing and spinning blanks are being made by the Weldless Rolled Ring Co., Cleveland, with the use of a special rolling machine that was designed by C. C. Venable of that company, who also developed the rolling process. The process was first adopted by the Washington Steel & Ordnance Co., Washington, in 1919-1920, being a development of that company's process for the manufacture of copper rotating bands

wall thickness being decreased and the diameter increased until a ring is formed of the desired size and shape.

The main housing of the rolling machine carries a spindle to which is attached a 60-in. flywheel at one end and a detachable mandrel at the other end. A clutch for starting and stopping is connected to the main shaft. Hinged to the main housing is a top housing which carries the top or main roll shaft, which is

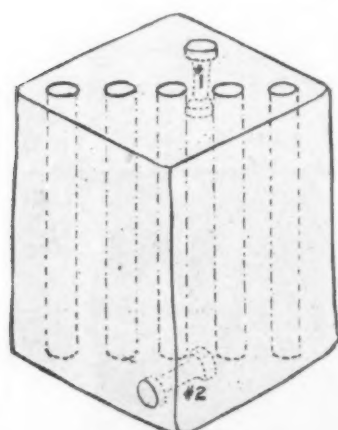


Fig. 1

Physical Tests to  
Show Value of  
the Rolling Forging  
Process

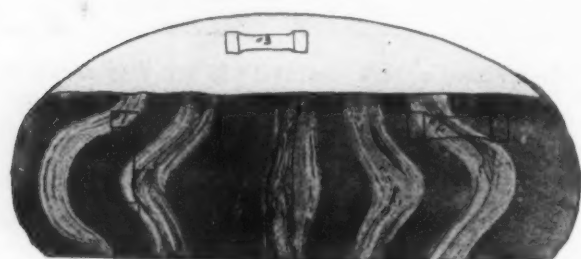


Fig. 2

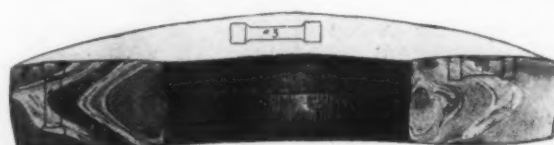


Fig. 3



Fig. 4

	No.	Elas. Limit	Ten. Strength	Elong.	Red. Area
Fig. 1.....	1	42,500	88,500	29	47
	2	37,500	86,600	21	32.2
Fig. 2.....	1	55,000	93,100	15	22.5
	2	55,275	94,269	17.5	32
	3	55,000	94,000	17.5	28.3

	No.	Elas. Limit	Ten. Strength	Elong.	Red. Area
Fig. 3.....	1	57,500	100,020	16	34.3
	2	60,000	102,600	20	42.4
	3	60,000	104,000	20.5	41
Fig. 4.....	3	65,000	111,200	21.5	45.7

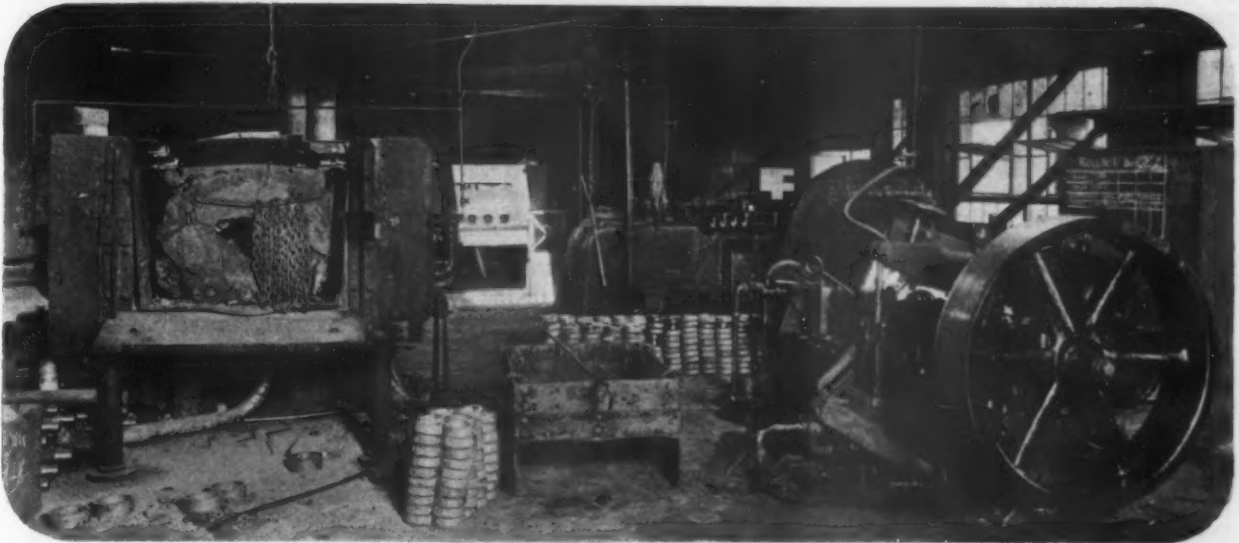
for armor piercing projectiles. Several months ago the Weldless Rolled Ring Co. was organized by former executives of the Washington company and established a plant in Cleveland with Samuel V. Hunnings and Mr. Venable, formerly metallurgical superintendent and mechanical engineer of the Washington company, as president and chief engineer, respectively. Charles R. Marsh is secretary-treasurer. The company owns the patents for both the special rolling machine and the rolling process.

The process of making rolled rings includes two main steps. The first is forging a hollow blank smaller than the desired ring from round or square bar stock by the usual upsetting process on a 5-in. National forging machine. However, the blanks for rings weighing from 20 to 75 lb. are forged under a drop hammer or power press. After the blank is formed it is placed on the rolling machine and rolled out, the

driven by a train of two pitch 6-in. face, heavy duty gears. The top roll housing is elevated and lowered by a vertical hydraulic cylinder. Main rolls of various sizes are used ranging from 14 to 20 in. in diameter and from ½ in. to 4 in. wide. At the lower end of the machine is a horizontal hydraulic cylinder to which is attached a reciprocating slide which not only acts as an outer bearing but prevents the spreading of the metal during rolling. In this reciprocating slide is inserted a sleeve which telescopes in to the mandrel and is driven by its contact with the blank that is being rolled, this being necessary because of the change in the peripheral speed of the piece as its diameter is being changed by rolling from the small forged blank into the finished ring. The bed of the machine is designed somewhat similar to a gap lathe to permit ample swing for rings of large diameter.

The forming roll receives its pressure through the





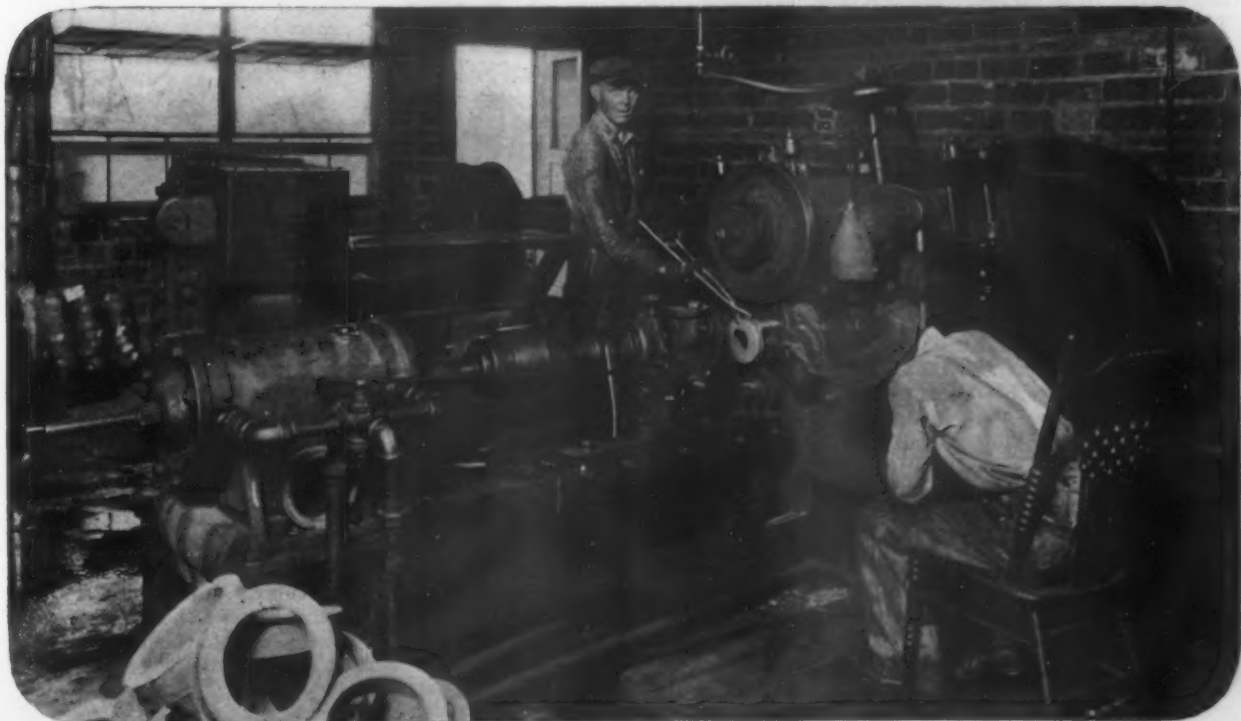
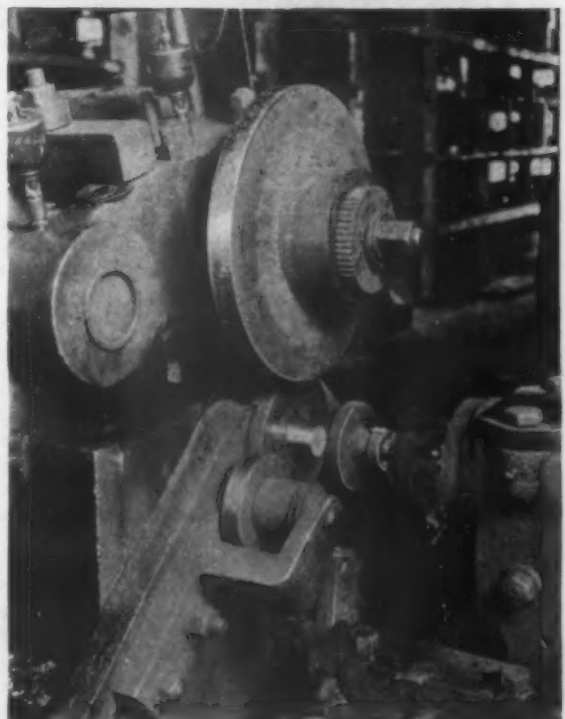
One of the Rolling Machines and the Forging Machine, with the Heating Furnaces at the Left

hydraulic cylinder from a centrifugal pump having a capacity of 100-gal. per minute. The pump delivers into an accumulating system and from there through a high pressure line to the cylinder that exerts the pressure on the roll. This pressure can be regulated so as to give a pressure of 5 to 25 tons, the amount of the pressure depending upon the size of the ring that is being rolled. The water exhaust from the cylinder is carried through the drain back to the main reservoir and is again used.

The usual practice is to use a blank with a hole 3 in. in diameter, this size being maintained in the heavier, as well as in the smaller blank. The minimum increase in the inside diameter of the blank under the rolling process is 100 per cent, a 3-in. inside diameter blank being rolled into a ring having an inside diameter

Below: Rolling Machine Showing Operator Placing the Forged Blank on the Mandrel. After the ring is in place the hydraulically operated reciprocating slide is brought forward until its sleeve telescopes the mandrel, then the roll is lowered and the blank is rolled until its diameter is increased to the desired dimensions

At the Right: Mandrel and the Three Guide Rollers with Which the Ring Comes in Contact When it has Reached the Required Size



of at least 6 in., but there is a range of up to 500 per cent in the increase in the outside diameter from the blank to the finished ring. A ring with external flanges or recesses in any design is made from a rectangular or square blank. Internal flanges are necessary on the forged blank in order to maintain the degree of accuracy of rolling required for the desired section.

The mandrel which fits into the main spindle is held in position by a drawbar and has a square dog drive. The main roll has an apron which holds three brackets in which are inserted guide rollers. These brackets are adjustable to roll rings from 3 to 30 in. in diameter. Before the machine is started, the guide rollers are adjusted for the size of the rings to be produced. When the ring is rolled to the desired diameter the guide rollers start to rotate from contact with the circumference of the ring and this indicates to the operator that the required diameter has been obtained. The roll is driven at approximately the same peripheral speed as the  $2\frac{1}{2}$  in. in diameter of the mandrel, the peripheral speed being approximately 300 ft. per min. Pressure on the two hydraulic cylinders is controlled by a  $1\frac{1}{2}$ -in. 4-way valve.

In rolling a blank the first step is to open the air valve and raise the top housing carrying the roll and lift the latter a maximum distance of 5 in., so that the hollow blank can be slipped on the mandrel. After the blank is in place the reciprocating slide is brought forward telescoping the mandrel until the slide comes in contact with the blank. Then the roll is brought down exerting pressure on the blank, which is rolled between the roll and mandrel until its diameter is increased sufficiently to bring the outer circumference in contact with the guide rollers, which act, as stated, as a gage for the operator.

Variation in width of internal or external contour of the rolled ring is controlled by changing the roll and mandrel and adjusting the reciprocating slide. The roll is belt-driven from the 60-in. flywheel by a 30-hp. motor. If specifications call for close limits the ring after being rolled is forced through a sizing die on a 50-ton Ferracute punch press and brought within limits of 0.005 in. It is stated that 90 per cent of the rings as they leave the rolls are concentric within 0.015 in.

The smaller blanks as previously noted are made on a forging machine. Blanks for rings weighing 6 to 20 lb. are formed in three operations, gathering, upsetting and punching off the bar. For blanks under 6 lb. only the upsetting and punching operations are required. Four oil-burning furnaces are provided, two for use in connection with the blank forming operations and two for heating the blanks for rolling. The blanks are heated to a forging temperature before rolling. The stock used is either hot or cold-rolled carbon steel and alloy steels of various analyses, mostly in round bars from 2 to 3 in. in diameter and in lengths of 6 to 10 ft.

The range of sizes that can be rolled by the process is so largely dependent on the weight and section that it is impossible to make definite limitations, although it is stated that, generally speaking, rings weighing from 1 to 75 lb. can be rolled. However, the company tries to avoid the two extremes in weight. It is pointed out that the greatest advantages of the process from the standpoint of manufacturing costs is the ability to use a blank having a small inside diameter and rolling it to one having a large inside diameter.

The relatively smaller blank used as compared with the drop forged process permits the use of smaller forging dies and there is less wastage of steel in the punch-out and flash, and consequently less scrap loss. This saving in making rolled rings as compared with the drop forging process is said to increase in proportion to the increase in the inside diameter of the rings that are being rolled.

Among the mechanical advantages claimed for the rolled rings are that they can be rolled close to size and that the absence of draft reduces machining and permits easy and accurate chucking. Another important feature claimed for the rolling process is that sections can be rolled that cannot be drop forged. Under the

rolling process the periphery and inside diameters can be made in such forms as full channel sections or with grooves, which it is stated cannot be made by drop forging.

As a means of showing the direction of the grain as well as the physical properties resulting from the process longitudinal and transverse tests were taken from the bar stock used in the manufacture of the rings for comparison with similar tests taken at successive steps in the production.

The tensile tests of the bar stock showed the greatest ductility, as indicated by the reduction of area in the test piece cut parallel to the axis of the bar (Fig. 1), i. e., corresponding to the direction of rolling, the reduction of area being 47 and 32.2 per cent, respectively, for the longitudinal and transverse specimens.

The effect of the second operation (Fig. 2), was to make the direction of the grain at right angles to the axis of the piece as is shown by the fact that the reduction in area is much higher, in tests Nos. 2 and 3, corresponding to the transverse direction of the bar stock, than in test No. 1, corresponding to the axis of the bar stock, the reductions being 32 and 28.3 per cent in the former tests as compared with 22.5 per cent in the latter.

The effect of the third operation (Fig. 3), is a general improvement in the physical properties but, as the greatest flow of the metal is at right angles to the axis of the blank, tests Nos. 2 and 3 cut in that direction show the greatest ductility.

The effect of the final operation, rolling the ring (Fig. 4), is to improve the physical properties to the extent that, although the strength of the annealed ring in open-hearth steel running 0.40 per cent in carbon is 111,200 lb. per sq. in., its reduction in area, as shown by the test specimens, cut with the periphery of the ring but at right angles to the axis of the initial stock, is 45.7 per cent. In comparison with this, the tests cut from the initial bar at right angles to the axis of the bar (Fig. 1), showed a reduction in area of only 32.2 per cent.

### Fractional Reference Gage Set

A set of reference gages including the fractional inch or common shop sizes has been added to the line of the Van Keuren Co., Allston, Boston.

The set is made up of gages of the following sizes:



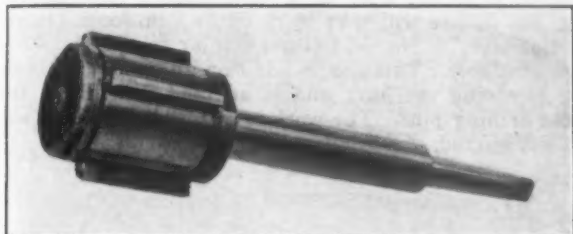
0.0625, 0.125, 0.1875, 0.250, 0.3125, 0.375, 0.4375, 0.500, 0.5625, 0.625, 0.6875, 0.750, 0.8125, 0.875, 0.9375 and 1.000. In addition to the foregoing sixteenth sizes, two gages, 3-32 (0.09375) in., and 5-64 (0.078125) in., are included to give combinations in thirty-seconds and sixty-fourths of an inch.

This equipment is particularly suitable as a reference standard for measuring steel balls and other products the standard dimensions of which are in fractional inches. A Bureau of Standards certificate of accuracy is given with the gages.



### New Expansion Reamer

The expansion reamer illustrated has been placed on the market by the Lambert Tool Co., East Fifty-fifth Street and Euclid Avenue, Cleveland. One inch expansion, or from three inches to four inches, is accomplished by two scrolls in which the threaded ends of the blades turn. The inner scroll is fixed, being attached to the shank collar by two pins. The outer scroll is keyed at the end of the spindle. The blades are set in position in the barrel, each being numbered and placed in the slot bearing a corresponding number,



One Inch Expansion Is Accomplished by Two Scrolls in Which the Threaded Ends of the Reamer Blades Turn. The proper cutting diameter is obtained by revolving the barrel

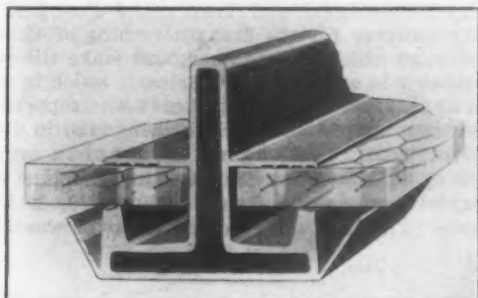
so that the threads on the ends of the blades will properly fit in the threads in the scrolls.

After the tool is assembled, the proper cutting diameter is secured by revolving the barrel, the blades turning in the threads and expanding  $\frac{1}{4}$ -in. with a complete revolution of the barrel. The desired adjustment of the blades is made by means of a micrometer. At the end of the outer scroll is a nut which is screwed tight against the scroll after the blades are adjusted. When a change is to be made in the adjustment, the nut is loosened slightly so that the barrel and blades will turn easily. The blades are  $\frac{5}{16}$  in. wide by 1 in. long, but an extra set of blades of greater width may be provided, and with these the tool will have a capacity of from 4 to 5 in.

The tool is available in sizes from 1 to 3 in. or larger. The 1-in. reamer expands to  $1\frac{1}{4}$  in. and the 3-in. reamer to 4 in. By turning the blade cylinder, tools can be increased by thousandths to any desired size within the limits of the tool. Set in a drilling machine the tool is regarded as particularly adaptable for reaming out automobile cylinders in repair shops where cylinders of various bores are reamed.

### Lead-Coated Steel Skylight

The American 3-Way-Luxfer Prism Co., Cicero, Ill., has put on the market a lead-coated skylight known as "Steelead," designed to combine the steel with a lasting quality of lead, a metal which is unaffected by weather, fumes, gases, smoke or dampness. Lead-



Skylight with Load Carrying Members of Steel and Exposed Surfaces of Lead. The lead surfaces are unaffected by weather, absorb vibration and permit of tight joints

covered skylights have been used for some years in Europe, but have only recently been introduced in this country. The type of skylight construction introduced by the American 3-Way-Luxfer Prism Co., consists of a

standard steel tee-bar over which is molded a seamless lead sheath of special design. The sheath is so shaped that on the heel of the bar a lead cushion or seat is provided for the glass. This is drawn to a knife edge under the glass to fit into any qualities of the unpolished glass surface.

At the side of this lead cushion is molded a strip of lead which is opened before the glass is set. This forms a gutter to catch any condensation drip from the glass. On the web of the tee-bar is molded, integral with the sheath of lead, a lead wing. After the glass is in place this wing is pressed down on top of the glass to hold it securely and form a weather-tight joint. The underside of this wing is ribbed, so that it fits the unevenness of the glass and forms a series of air seals to keep out wind and water. When pressed into place, the wing is found to hold firmly and no underdraft dislodges it or loosens the glass.

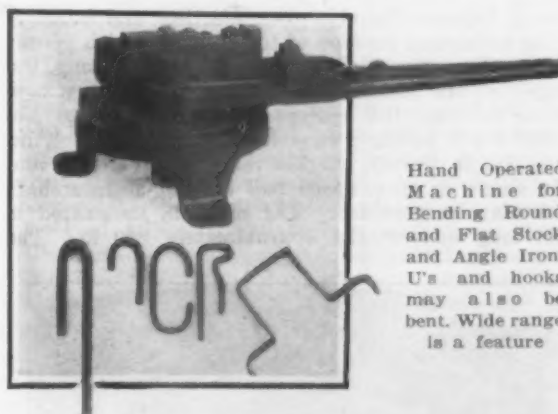
All the load-carrying members are steel and all exposed surfaces are lead. The strength of the steel permits of a maximum of glass area. The lead surfaces absorb vibrations and allow for liberal expansion and contraction without affecting the tightness of the joint. No painting is regarded as necessary and no bolts, screws or nuts are exposed to the weather.

### Bender for Light and Medium Stock

The hand-bending tool illustrated, designated as the No. 1 angle and U bender, for light and medium sizes of stock, is being offered by D. A. Hinman & Co., Sandwich, Ill.

With standard equipment the machine will bend round or flat stock to angles of any degree, and angle iron may be bent after cutting a V in the wing of the stock at the bending point. Flat stock may be bent edgewise, and by means of U-blocks, which are available at extra cost, U and hook forms of various sizes may be produced.

Flat stock up to  $2 \times \frac{1}{2}$  in. and rounds and squares up to  $\frac{3}{8}$  in. may be bent hot, and bends in flat stock,



Hand Operated Machine for Bending Round and Flat Stock and Angle Iron. U's and hooks may also be bent. Wide range is a feature

cold, up to  $1\frac{1}{2} \times \frac{1}{4}$  in. and rounds and squares up to  $\frac{1}{2}$  in. may be made. Flat stock, hot,  $1\frac{1}{4} \times \frac{3}{8}$  in. and under is readily bent edgewise and angle iron up to  $2 \times 2\frac{1}{4}$  in. may be bent by cutting a V in the wing at the bending point.

Forms for U and hook bends up to 2, 4 and 6 in. inside, across, are available. With special equipment U's and hooks up to 12 in. inside, across, can be formed.

The net weight of the machine is approximately 60 lb.

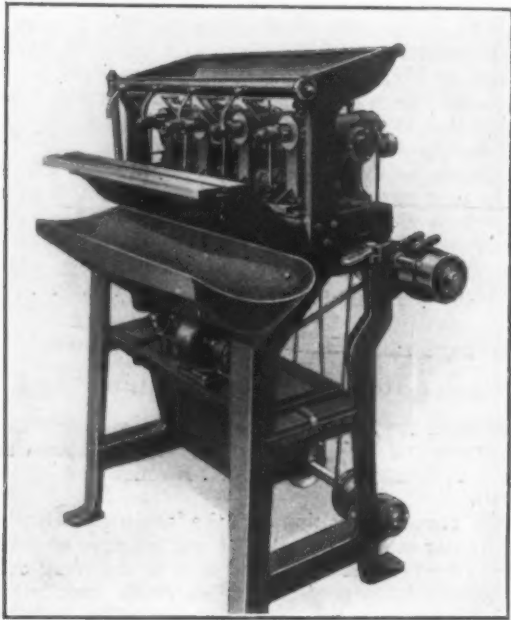
Follansbee Bros. Co., Pittsburgh, has come to an agreement with the Amalgamated Association of Iron, Steel and Tin Workers of North America and the men are back at work at both plants of the company, following a brief suspension. The company has signed the general scale for its Follansbee, W. Va., plant and a special scale for its Toronto, Ohio, works, which produces charcoal tin plate and automobile sheets. The latter is what is classed as a loose rolling plant and carries a special scale of wages.



### Horizontal Gang Type Machine for Small Single Hole Drilling

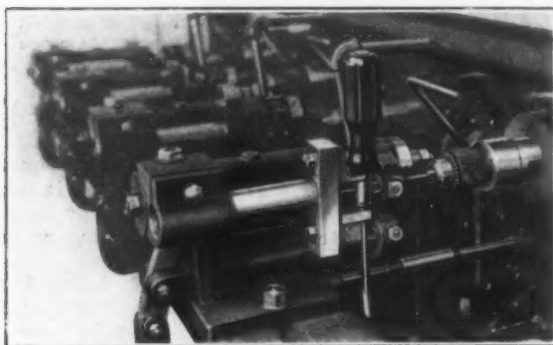
The No. 8 automatic sensitive drill head of the Kingsbury Mfg. Co., Keene, N. H., described in THE IRON AGE of Oct. 19, 1922, has been incorporated in the machine illustrated, which is offered as a multiple spindle horizontal gang type unit for small single hole drilling.

The feed is automatic and the spindles act independently of each other. The adaptability of mechanically



Gang Type Machine for Small Single Hole Drilling. Horizontal spindle arrangement permits chips to drop directly into pan. Fixtures for clamping, ejecting and burring may be used

operated fixtures for clamping, ejecting and burring, and the horizontal position of the spindles which permit chips to drop directly into the pan are among the features of the machine. Machines with either two, three or four spindles equipped with the No. 8 or No. 8½ drill heads having a capacity up to ¼ in. and ⅜ in. (or ½ in. in brass), respectively, are available and either single or three-speed ball bearing countershaft drives may be provided. The machine illustrated is 45 in. long and weighs approximately 800 lb. The



Mechanically Operated No. 60 Fixture with Adjustable Jaw for Screw Drivers

height to the spindles is 42 in. Drill heads are spaced 8 in. on centers.

The company's No. 60 fixture, which is a general purpose mechanically operated device for use with machines incorporating the No. 8 automatic drill head, is shown in the separate illustration. It is regularly equipped with V-block for cross drilling pins, but can be adapted to centering and other work. The front vise jaw is mounted on a stud which is adjustable longitudinally. The work has a rigid backing during

the drilling. The rear jaw is on a plunger operated by a stiff spring. This jaw contains the drill guide bushing. Alignment is maintained by a hardened bushing sliding on a hardened and ground pin. This clamping jaw is opened automatically and held open by the drill head at the completion of the cycle. The only motion for the operator is placing the work against the gages and at the same time tripping the spindle. The average time for a complete cycle on brass work is said to be 2 sec., and the average time for a cycle drilling a ⅜-in. hole through ⅝-in. cold-rolled steel is said to be about 6 sec.

The capacity of the No. 60 fixture with standard V-block is for work up to ¾-in. diameter. For centering, the fixture will take work up to 4 in. long, 1½ in. in diameter. A No. 58 fixture, similar to the No. 60 is also available. This has in addition an opposed spindle for removing the burr and is adapted principally for cross drilling pins. The work is automatically clamped, drilled, burred, and finally ejected.

### American Malleable Castings Association Meets in Providence

The members of the American Malleable Castings Association held a midsummer meeting at Providence, R. I., July 17 and 18, where they were entertained by the Rhode Island Malleable Iron Works and visited its plant. About 65 members were present, mostly representing Eastern counties. A short business session was held, presided over by President R. R. Fauntleroy. During this meeting the general business situation was discussed. The consensus of opinion was that there is a lull at present in the malleable iron industry, but the members felt that the slowing down is only temporary. Reports indicated that the foundries now have enough work on their books to keep running from two to two and a half months. Reports also indicated that the labor situation has become easier.

The entertainment included a clam bake at Hummocks, a trip by boat to Newport and a banquet at the Providence Biltmore Hotel. Charles Brown, president of the Rhode Island Malleable Iron Works Co., was host at the banquet which was in charge of Harry L. Steeves, vice-president of that company and also vice-president of the association. Speakers at the banquet included President Brown, Governor Flynn of Rhode Island and United States Senator Green of Vermont.

### Excessive Labor Turnover in Milwaukee

The fractional percentage of reduction in the number employed in metal trades shops in Milwaukee during May was accentuated to a slight extent in June, although a net increase of 1.2 per cent for all industries is reported. Comment is general relative to excessive labor turnover, particularly in iron and steel and machinery lines. According to W. J. Fairbairn, secretary Milwaukee Metal Trades and Founders' Bureau, the turnover for the first six months of 1923 was of an average which, if continued, will make the yearly total probably in excess of 200 per cent, which is nearly as high as in 1920, when 210 per cent was reported. In 1921 turnover amounted to 98 per cent, and in 1922 it was 147 per cent. These figures are based on averages reported by 25 Milwaukee foundries and machine shops with payrolls numbering from 18,000 to 20,000 in the aggregate. For June the reported turnover was 17 per cent.

June production of automobiles, based on figures received by the Bureau of the Census in cooperation with the National Automobile Chamber of Commerce and covering approximately 90 passenger-car and 80 truck manufacturers each month, is 336,317 passenger cars and 40,565 trucks. In May, the output of passenger cars was 350,180 and of trucks 43,012, the latter a revised figure.

# Corporation Closes in Basing Point Case

## Examiner Rules Against Evidence Intended to Compare Contract Prices with Quotations in THE IRON AGE—Believes It Practicable to Tell the Whole Story

WASHINGTON, July 24.—Exhibits introduced by the United States Steel Corporation in the Pittsburgh base case intending to compare contract prices with quotations in THE IRON AGE were held by Examiner J. W. Bennett to confuse the question of uniform prices with stability of price from week to week. He declared that it was "merely confusing evidence as to a competent issue by coupling it up with evidence that is not competent to any issue." The decision is favorable as to the accuracy of quotations of THE IRON AGE in so far as any issue has been made of them.

Mr. Bennett made this ruling last Wednesday at the close of the defense of the Steel Corporation. This and other rulings grew out of objections by Attorneys K. E. Steinhauer and E. W. Burr of the commission.

The ruling referred to a series of exhibits whereby the Steel Corporation through its final witness, A. V. Winter of the price bureau of the Illinois Steel Co., attempted to show lack of uniformity of price with THE IRON AGE quotations. The material dealt particularly with the plan of the exhibits of comparing all contract prices with the four IRON AGE issues immediately preceding the date of contract. The examiner declared:

"It is obvious where the prices change from week to week that (the method followed) would multiply by four the variations so far as the price changes were involved."

### A Matter of History

Objection made by Mr. Burr to the failure of the exhibits to compare with the succeeding IRON AGE quotation in view of the probability of a change of price between the issues of THE IRON AGE was referred to by the examiner as a fundamental one.

"THE IRON AGE quotations are a matter of history," said the examiner. "They give prices which have been assumed, and for that reason THE IRON AGE quotations of the dates prior to any sale or any contract could not possibly affect the price of that sale or contract. Where THE IRON AGE quotation coincided with the date of contract, that difficulty might be obviated to the extent of a single date."

Because of this the examiner said that he saw no reason why the date following should not be accepted as the standard date of comparison instead of taking any other date except the next preceding date, "which would apply to some of the sales, namely, the sales made on the date of the quotation."

"The trouble with the four weeks' standard, it seems to the examiner," Mr. Bennett said, "is this: It confuses the question of uniform prices, which is the fact to which this series of exhibits goes, or any one uniform price, stability of price from week to week."

It was pointed out by the attorneys for the commission that Birmingham district contracts were included in the exhibits and compared with THE IRON AGE price at Pittsburgh plus freight to destination in spite of the fact that, it was stated, the Steel Corporation's answer admits that the Birmingham district has not been for many years on the Pittsburgh plus basis, but rather that of the Birmingham differential. With regard to this objection the examiner said that the point was well taken.

### Confusing the Issues

Objection also was made that future delivery contract prices were merged with contract prices for immediate delivery, whereas those for future delivery are not comparable with the price prevailing at the date of contract.

"As the examiner pointed out in commenting on similar exhibits some time previous, variations due to differences in deliveries, or differences in prices or due

to selling in the Birmingham district, or Chicago district, or Chicago district at times when there was a Chicago base," said the examiner, "might have bearing upon some issue in this case; but, in his judgment, taken with other variations, on a quite different basis, they tend to confuse the issues rather than to clarify them, and are not of value as evidence."

In ruling upon the objection that the exhibits included the full extra in each case where an extra would be expected to be taken in spite of the record showing that at times half extras had been charged and that other times the extras had been waived, the examiner said:

"In the opinion of the examiner, in order to make comparable in a document of this kind, any commodity upon which an extra is charged over the list price, it is necessary to establish as to that commodity that the sales have been uniformly at a certain fixed figure above or below that price, and to the extent that the record indicates a want of fixed relationship between the price of the basic and the price of the item bearing the extra, the examiner considers this specification well taken."

Dealing with certain of the exhibits as the objections related to the question of the extras, Attorney W. W. Corlett of the Steel Corporation declared that these particular exhibits were introduced simply to "show that by the use of those extras we would have been better off in making our comparison had we ignored those figures entirely, because it (the method) brought it off the Pittsburgh base even more than it brought it on the Pittsburgh base. So if anybody is harmed it is ourselves and not the commission."

Attorney Steinhauer combated the position of Mr. Corlett and referred to the other objections upon which Mr. Corlett had offered no defense, it was said.

### Analysis of Shipments

Charles K. Winslow of the accounting department of the Steel Corporation presented exhibits purporting to be a general and detailed analysis of shipments from "grand steel producing districts" of the United States into all of the territory west of the line commencing west of Michigan and Indiana and thence down the Ohio and Mississippi rivers and including parts of Indiana near Chicago. The purpose was to show the steel consumption of the so-called Chicago territory as considered by the Steel Corporation.

Mr. Steinhauer objected that the tonnage included a vast amount of steel sold on the fabrication-in-transit privilege basis, which, he said, would not have been purchased from the Eastern mills except in order to secure the privilege. Also, he said, that shipments from the East did not mean a shortage in Chicago, but rather that the Pittsburgh plus practice permitted the Eastern mills to secure business in the Chicago district. He maintained that it gave the Eastern mills a parity in the Chicago district with the local producers. Objection likewise was made that 1920, upon which solely the figures were based, was not a representative year nor a competent test to justify a practice of many years' standing. It was also objected that the statement did not show the tonnage shipped into the Pittsburgh district by mills outside of that district and that among mills East of the Chicago district shown in the exhibit as shipping into the Chicago district were many located at points in Ohio and other producing centers, which, Mr. Steinhauer contended, would not be competent to justify the charging of the unearned freight from Pittsburgh. Objection also was made that shipments into Chicago territory during a single year of heavy business when mills everywhere are crowded



mean nothing except that the shortage in the East is further increased by any shipments westbound. He also urged that the actual production and consumption figures of each company were the best evidence.

#### An Important Point

In passing upon these objections, the examiner said in part that this series of exhibits "Goes close to the heart of the defense of the respondent. And for that reason it is important that the matter be scrutinized carefully and be considered fully. The first thing that occurs to the examiner is, assuming that there may be a shortage of production in the Chicago district, to what extent is that due to the practice that is being tried out, and to what extent does it reflect the condition of price competition? If, as a matter of fact, there might be a shortage of production in the Chicago district as compared with demand in that district, what does that mean as to the particular point of basing for those various items?"

"It seems to me," he continued, "that unless the whole story is told, and told in as much detail as practicable, and the examiner thinks it would be practicable, to tell it in detail confined to State boundaries—an exhibit of this kind cannot mean much in finally determining the issues in this case." He then went on to say that "to make a comparison which would be at all conclusive as to the effect of a shortage or a greater abundance of steel in the particular district, those items, in the opinion of the examiner, would have to be classified into items which were commercially competitive. In other words, in the examiner's judgment, if you were comparing foodstuffs you would not compare corn prices with wheat prices, although both might be foodstuffs; and so, if you will take an item of bars that took a base price in competition, and include in that item a number of items which might refer in a general way to that base price, but when they came into competition, would have their prices fixed in competition by the immediate competition of the special item, it would

seem to me that unless you have the classifications in sufficient detail to permit of comparing a competitive item with a competitive item in each case, you could not reach any very definite conclusion."

#### Ohio as Center of Production

"It would appear," the examiner further said, "that as to some of the items or sub-classifications in this document, the center of production is in Ohio rather than in Pennsylvania or Pittsburgh. A compilation of this kind, in view of that fact, could not determine with any definiteness, whatever other facts it might show, whether the fact that the items came from outside of Chicago would justify a Pittsburgh base price rather than the base price in the territory where the surplus production took place. There are difficulties of that kind which the examiner would regard as inherent in the document as submitted."

The examiner also said that he thought the export tonnage should be considered in a compilation of the kind mentioned. Mr. Bennett referred also to what he called the weaknesses of the evidence purporting to be compiled by the exhibits offered. He renewed his ruling made when the underlying documents were introduced, holding the evidence incompetent "because founded on hearsay testimony, because the witness is not properly qualified, because no proper foundation has been made for the offer and because it is not the best evidence." Among other things the examiner said was that "the compilation includes a considerable quantity of steel not manufactured in the Chicago district and purchased in the East because it could not be supplied from any other territory."

Mr. Corlett took an exception to the rulings with the right to extend his reason for his exception. The defense closed with the reservation of the right to call one witness to prove the existence of a basing practice in spelter and possibly in some other metals in the foreign markets.

Rebuttal evidence will begin here Dec. 10.

## COSTS OF PRODUCTION

### Tariff Commission Receives Help from Blast Furnace Operators in Philadelphia District

WASHINGTON, July 24.—At the first public hearing on Tuesday of last week of the Tariff Commission in its investigation under flexible provisions of the Fordney-McCumber act, it was announced that the commission has not as yet decided whether it will make available to interested persons information gathered by its investigators as to costs of production. While the hearing related to an application for a reduction in duty on paint brush handles and, therefore, was of but little general importance so far as the individual case itself was concerned, a great deal of interest was attached to it because it was hoped to get a clear idea of the procedure to be followed by the commission.

It, of course, is well known that in getting information from industries, the Tariff Commission will not disclose statistics of individual manufacturers. Manifestly, to do otherwise would make it extremely difficult, if not impossible, for the commission to gather material. In this connection it is stated that blast furnace operators in the Philadelphia district have cooperated freely with representatives of the commission who are making a study of pig iron production costs under an application seeking to have the tariff duty of 75c. per ton increased the maximum amount of 50 per cent allowable under the flexible provisions of the tariff act.

The investigation is under the direction of Paul M. Tyler, head of the Iron and Steel Section of the Tariff Commission and who himself has been personally gathering information in the Philadelphia district. The work will be extended to all merchant pig iron producing sections of the country as well as to producing centers in Europe. The commission apparently believes that it will be successful in obtaining information as to costs from foreign makers. While foreign manufac-

turers in certain lines already have indicated that they would not give information to agents of the commission, the opinion seems to be that this attitude will not be adopted generally. It is pointed out that foreign manufacturers themselves, by disclosing legitimate information, can best serve their own interests by bringing out full details at hearings and that at the same time there will be made available to them information as to competitive conditions in the United States, but not in the way of naming or giving figures of individual producers.

#### An Interesting Point

An interesting point discussed at the first hearing under the flexible provisions was brought up by Commissioner Glassie. It was clear from his questions as well as those of other members of the commission that it was earnestly seeking the opinion of lawyers as to the powers of the commission under the flexible provisions, which, represent a distinct departure in tariff making in the United States. Commissioner Glassie asked former Judge Marion DeVries, appearing as counsel for the applicant in the paint brush handle case, whether he thought the commission had the power to raise or lower rates on any commodity regardless of whether there were any imports of such commodities coming to the United States. Mr. Glassie, apparently putting his question in a hypothetical form only, made the inquiry on the basis of the supposition that there were no imports of pig iron. By some, it was gathered from the fact that this product was mentioned specifically, the question of Mr. Glassie indicated the attitude of the commission in conducting an investigation as to pig iron costs. It is evident, however, that such a view is entirely erroneous. It has been pointed out that Mr. Glassie obviously is aware that during the past year there has been a hitherto unprecedented import movement of pig iron and, therefore, that his mention of this product had no significance.



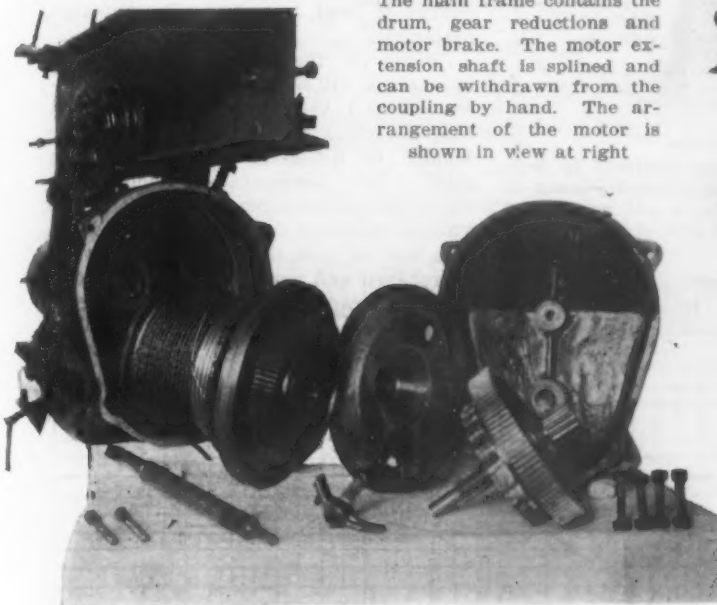
### Few Parts Feature of New Hoist

Small number and accessibility of parts, and the use of only two reductions in gearing, are features of a new electric hoist, recently brought out by the Stamp Electric Hoist Co., Cleveland.

The machine, photographic reproductions of which are shown herewith, is offered in capacities from 500 to 5000 lb. The main frame contains the drum, gear reductions and a Weston type motor brake. The gears and shafting are of alloy steel, the former heat-treated. Gear teeth are machine cut. The bearings are of Hyatt heavy-duty type. The hoisting mechanism, including all bearings, except the motor bearings, run in oil. The drum is large in diameter and is grooved and set in the frame so that the cable cannot get outside the drum flanges.

The motor is entirely inclosed and is connected to the hoist by a flexible disk coupling. The motor extension shaft is splined and can be withdrawn from the coupling by hand. Around this coupling is a shoe-type motor brake operated by a cam on the controller

Small Number and Accessibility of Parts Are Features. The main frame contains the drum, gear reductions and motor brake. The motor extension shaft is splined and can be withdrawn from the coupling by hand. The arrangement of the motor is shown in view at right



### Manufacturers Urged to Buy Coal as Soon as Possible

WASHINGTON, July 23.—The importance of safeguarding the continuance of operations by the prompt purchase and shipment during the next two months of coal for fall and winter consumption was strongly urged upon industrial users by the Department of Commerce in a statement made public last Friday by acting Secretary J. Walter Drake. The statement, which has been sent to industrial interests, points out that a statement has just been issued by the Federal Fuel Distributor calling attention to that fact that the industries generally have thus far very largely failed to secure their coal requirement for next winter's use and that they will therefore be demanding the shipment of coal at a time when experience shows the greatest burden of the year is placed upon the railroad. A shortage of fuel, it is pointed out, during the fall and winter would result in a failure of production and a loss far exceeding any slight extra burden that might possibly be occasioned through the purchasing and stor-



shaft. This opens with the motor running and closes with the motor shut off. A heavy limit lever connected by chain to the controller stops the motor at the upper limit of the hook travel.

The trolley sides are of cast steel. Track wheels are of large diameter and are fitted with flexible roller bearings on alloy steel pins. The trolley is adjustable for several sizes of beams. The current collectors are also adjustable.

The hoist may be equipped with crane type alternating or direct current motors of any standard make, and with single or variable speed control. The full load hoisting speed is from 15 to 50 ft. per min., and the lifting range is from 11 to 45 ft.

### Partial Rebuilding of Republic Stack

The Republic Iron & Steel Co. has awarded a contract for the partial rebuilding of No. 3 blast furnace in its Haselton group, Youngstown, to the William B. Pollock Co., of that city. The new work will include an entirely new top, a skip and dust catchers. Plates to be used in the fabrication will be furnished by the Republic company.

The stack will continue in operation until fabrication of the parts is completed, when it will be blown out and relined.

The furnace has been producing iron on the same lining since September, 1918.

ing of coal in advance of the time of peak load upon the railroads.

The statement calls attention to the fact that on April 11, 1923, a communication was addressed by Secretary Hoover to the trade associations of the country urging them, among other things, to take immediate steps to bring about cooperation among their members to secure advanced storing of coal during the light consuming season and before the heavy traffic demands of the fall were imposed upon the railroads. It was pointed out that such action on the part of the industries would operate in a great measure to safeguard against the disastrous consequences that have followed the postponement of coal purchasing and shipment to a late period in the season when the railroads are not able to handle the increased traffic.

Neely Bolt & Nut Co., 2101 Wharton Street, Pittsburgh, South Side, which recently enlarged its plant, now is producing large machine and carriage bolts and plans to make the smaller sizes. The company also is making rivets. Formerly its principal product was hot-pressed and cold-punched nuts.

Statistics of the Leather Belting Exchange representing about 60 per cent of the total product show total sales in June of 442,912 lb. valued at \$834,447, against 512,573 lb. in the preceding month and 441,812 lb. valued at \$721,037 in June, 1922.

# Laboratory Control in Automobile Castings

## Sand and Iron Subjected to Searching Analyses—Moisture and Porosity Tests—Use of Diagrams for Presenting Data

BY HENRY M. LANE\*

ALL core and mold setting jigs used in the Wilson Foundry & Machine Co. plant at Pontiac, Mich., are under constant inspection of the tool room or pattern shop, and also a certain number of castings

metallurgical end. The laboratory has always had control of much more than the metal and, by close collaboration between the foundry superintendent, the head of the laboratory, the head man in charge of the rigging, and one or two others, who act as a general committee, they have been able to correlate all of the work, which results in more economical production, and much more harmonious operation of the plant. In fact this plant is noted for its team work. They have always recognized the fact that good iron alone could not produce good castings, and hence the laboratory has charge of sand, iron, and all other raw materials.

Some of the reports kept in the laboratory will undoubtedly be of interest. Fig. 1 shows a graphical report that is prepared each month for the benefit of different members of the staff. The segments of each circle show the percentages taken up by the various products coming from the melt.

The loss includes the difference between the pounds of metal purchased and pounds of castings sold. The various classes of scrap from the pig beds, gate sprues, and foundry scrap are naturally returned to

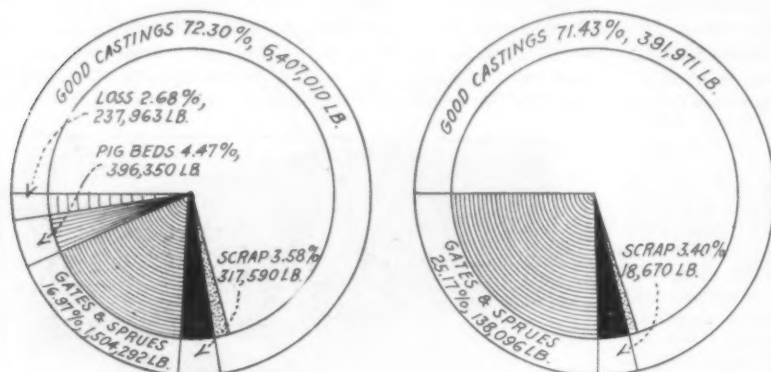


Fig. 1—Diagram Showing Percentage of Good Castings Produced in September, 1922. The dotted portion of each circle represents foundry scrap in the machine shop—at left (gray iron) it was 139,446 lb. or 1.57 per cent of total melt; at right (aluminum) 4589 lb. or 0.84 per cent of total melt

are cut up from time to time to make sure that core boxes, patterns and jigs are functioning properly. In addition to this, a certain number of castings from each day's run are put through the shop every day in advance of the general run, so as to check up on all operations, including coring, molding and the metallurgical work.

Castings selected from each day's heat for tests are marked with paint, the color of which is changed each day. Monday's castings have a blue spot on them, Tuesday's yellow, Wednesday's pink, Thursday's white, Friday's green and Saturday's red.

Necessarily only the castings machined in this plant can be tested in this way. But since the Willys-Knight motors are machined and assembled complete in this plant, and a number of the Overland models completely machined, this makes it possible to send the necessary number of castings through each day to keep an accurate check on the foundry. This accurate check is held in no small way responsible for the remarkably small casting loss in this foundry.

It may be of interest to say something of the

pounds of metal purchased and pounds of castings sold. The various classes of scrap from the pig beds, gate sprues, and foundry scrap are naturally returned to

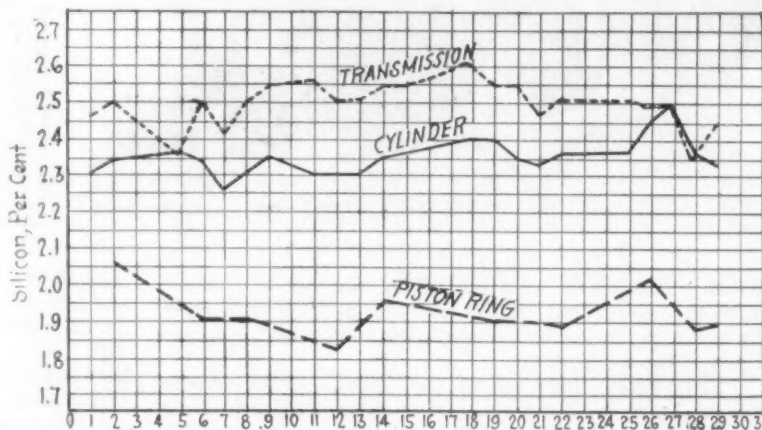


Fig. 2—Silicon Chart for September, 1922

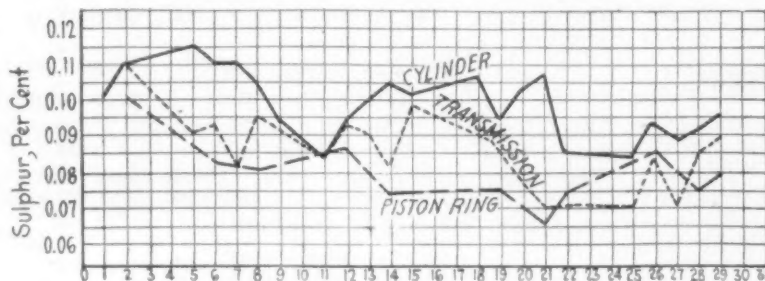


Fig. 3—Sulphur Chart for September, 1922

\*Industrial engineer, Detroit. This is the concluding installment of abstracts of a paper read by Mr. Lane before the National Foundry Association. The other portions appeared at page 745, March 15; page 1037, April 12; page 1173, April 26 and page 1562, May 31.

the cupola for remelt. The dotted area indicates the machine shop scrap return for the corresponding month and naturally this also passes to the cupola for remelt.

The remarkably low scrap loss maintained in this plant is due to the eternal vigilance not only of the laboratory, but of those in charge of equipment throughout the entire plant.

Each month there are also made up charts showing the variations of various ingredients as shown by the daily analysis but, in this case, particular attention must be called to the fact that, in order to take advantage of the raw material available, it is frequently necessary to juggle certain elements to maintain the desired combined carbon, Brinell test, or

some other physical requirement. Whenever a given element is juggled it is generally necessary to juggle certain other elements in the opposite direction to obtain the required result, and this gives us curves that



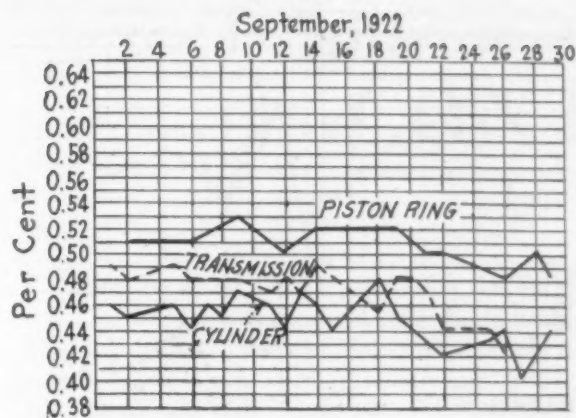


Fig. 5—Combined Carbon Chart for September, 1922

are not so smooth as they would be were it possible to obtain absolutely uniform grades of iron.

Fig. 2 shows the silicon curve for the three principal classes of castings for the month of September, 1922; Fig. 3 the sulphur curve; Fig. 4 the manganese curve; Fig. 5 the combined carbon curve. Particular attention is called to the closeness to which this curve is controlled. Fig. 6 shows the Brinell test curve.

Some other curves that may be of interest include Fig. 7, giving the total amount of coke and iron used for the first ten months of 1922. The right hand portion of this diagram shows the ratio between coke and metal melted. Fig. 8 shows the total amount of molding sand and core sand used, and the ratio between the number of pounds of iron produced and the amount of sand used.

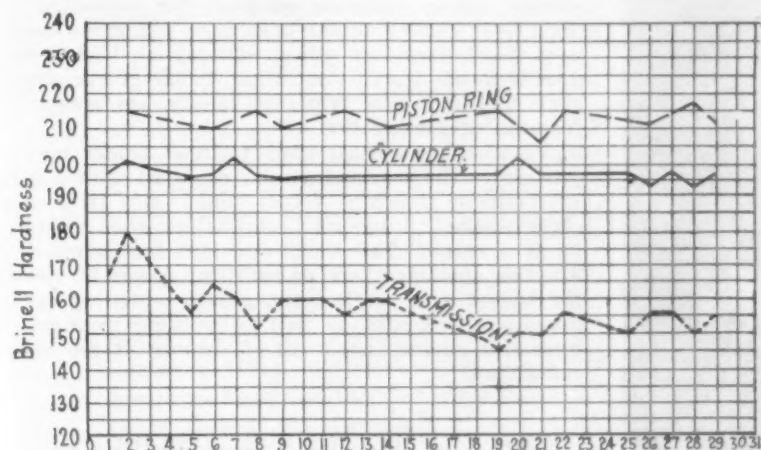


Fig. 6—Brinell Hardness Test Chart for September, 1922

All analyses are made from samples obtained by drilling the test bars. On all standard mixes a test bar is cast every hour, and on special mixes every 20 min.

In the melting practice an amount of limestone is used equal to 3 per cent of the weight of the metal, and fluor-spar equal in weight to 5 per cent of the metal, and the cupola practice is aimed to give 5.5 lb. of iron per pound of coke. The diagram shown in Fig. 7 gives the ratio for the entire plant, which is affected more or less by the number of cupolas in blast, and the amount of bed coke which has to be distributed over the entire melt.

For the piston iron a cupola is used which has been lined down to 36 in. in diameter, so as to enable the use of 1000-lb. charges. The well of the cupola will hold about 3000 lb. of metal,

so that when a tap of 1000 lb. is made, there should be three fully melted charges in the well, which insures a thorough mix. Transmission iron is melted in the larger of the two cupolas of the old battery, and in this case 2500-lb. charges are used.

The high record mark for melting in this plant was made in January, 1920, when the daily melt averaged 360 tons.

It has already been mentioned that the molding and core sand are under the control of the laboratory, and the laboratory determines the proper time for mixing each batch. All sand heaps are inspected each day, and a moisture and porosity test made. The moisture determination is made by treating a weighed quantity of sand for evaporation of moisture between the temperatures of 100 and 101 deg. Cent. (212 and 214 deg. Fahr.).

Porosity tests are made by an instrument known as "Castrite" which is shown in Fig. 9. The principle on which this works consists in splitting a flow of compressed air between two orifices. Any resistance that

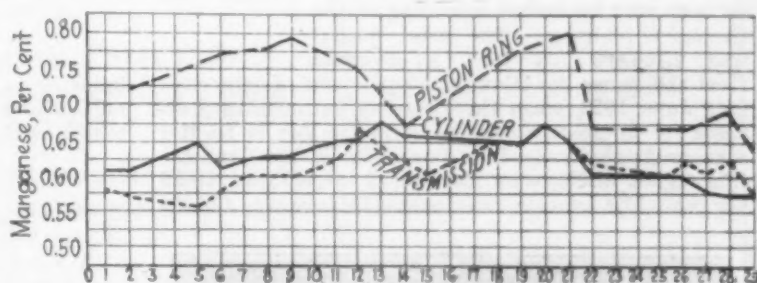


Fig. 4—Manganese Chart for September, 1922

is felt at one of these orifices will naturally increase the amount flowing through the other orifice, and raise the pressure shown on the gage used in connection with the instrument. An example of the test made for one day, and the results obtained therefrom will be of interest.

	Per-centage Openness	Per-centage Moisture
Beardsley-Piper machine No. 1.....	24.0	5.94
Beardsley-Piper machine No. 2.....	23.5	5.75
Beardsley-Piper machine No. 3.....	23.5	6.60
Floor No. 5.....	25.6	5.45
Floor No. 7.....	22.3	7.25
Floor No. 12.....	21.7	8.17
M-4 flywheel facing.....	15.4	7.93

With the reading shown in this table there were no castings showing blows reported for the day. At one time, however, when they were developing their practice in connection with this instrument, one of the molding floors showed an openness reading of between 17 and 18, and a

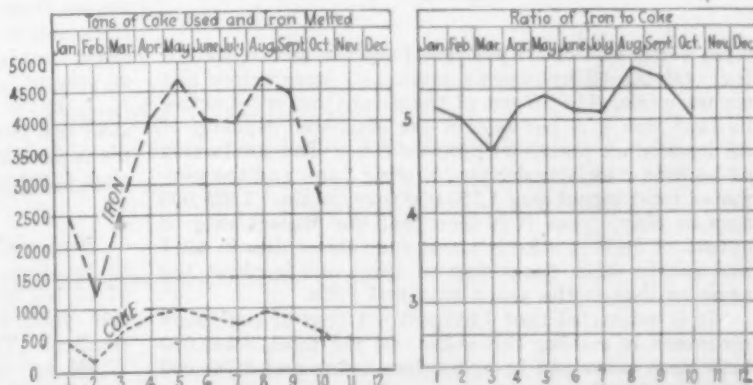


Fig. 7—Coke Ratio for 1922



moisture content of between 9 and 10 per cent, and this resulted in 10.15 per cent of the castings showing blows. This shows the importance of moisture and openness tests.

In this connection it may be of interest to state that the openness is to a large extent dependent upon the moisture, as an increase of moisture always gives a lower reading which indicates greater density. The core binder used in this plant is the best grade of raw linseed oil, and is very carefully tested.

### Production of Coke Declines Slightly in June

WASHINGTON July 24.—The production of by-product coke declined slightly during June, but continued at a rate well in excess of the average monthly rate for any year on record according to the Geological Survey. The total output was 3,166,000 net tons, a decrease from the figure for May of 4.9 per cent. Comparison with June, 1922, when there was an extraordinary demand for by-product coke to fill in the gap in beehive coke production caused by the strike in the Connellsville region, discloses an increase of 586,000 tons, or 28 per cent. The average daily output in June was 105,524



Fig. 9—"Castrite" Instrument Used for Determining Porosity

tons, a decrease of 1.7 per cent from the month preceding. Of the 69 by-product plants, 63 were active and six were idle. The output of the plants that were active in June was 87.6 per cent of the estimated capacity of all by-product plants to produce coke. The production of beehive coke also declined during June and the estimated total output was 1,755,000 tons, against 1,829,000 tons in May. Thus it is seen that the present rate of output of beehive coke is about four times that in 1921 and nearly three times that in 1922, and is about the same as that in the years 1919 and 1920.

It is estimated that 7,317,000 net tons of coal were consumed in making this coke. Of the total, 4,549,000 tons were consumed in by-product ovens and 2,768,000 tons were used in beehive ovens. At present the coke

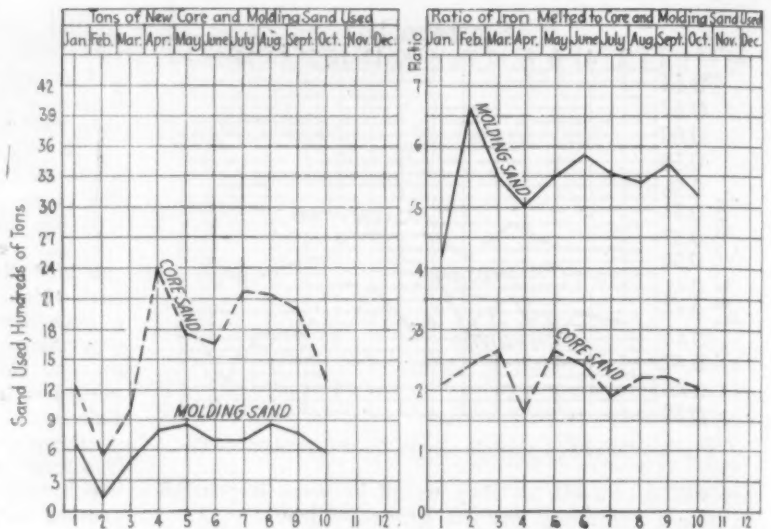


Fig. 8—Diagram Showing Consumption of Molding and Core Sand, and Ratio of Core and Molding Sand to Iron

industry is consuming coke at the rate of nearly 88 million tons per year, against approximately 85 million tons in 1920, the year of record production.

### New Heavy-Duty Steam Shovel

A revolving steam shovel of the 1¼-yd. class, designed for heavy work without sacrifice of speed, simplicity or ease of operation, has been added to the line of the Osgood Co., Marion, Ohio. In general design the machine is modeled after the company's ¾-yd. steam shovel.

Horizontal hoisting engines, submerged tube type vertical boiler, centering gudgeon for connecting the main body casting to the path gear, simplified continuous tread mounting, power steering on both continuous tread and traction mounting, double-gear shipper shaft and automatic trip rope tension are among the features of construction.

Standard or special gage railroad trucks may be provided. The machine can be equipped with a high-lift boom or trenching dipper, and is said to be especially adapted for use with clamshell or dragline bucket or as a crane. The drums provided for clamshell or dragline equipment are of sufficient power to operate the bucket with single lines, greatly speeding up the operation, it is said, as well as reducing wear on the lines and eliminating a set of sheaves at the bucket connection.

### Plans of Maryland Steel Rolling Co.

The Maryland Steel Rolling Co., Fidelity Building, Baltimore, has purchased a plant and will operate a reclaiming mill having a theoretical capacity of about 60,000 tons of steel bars per annum. The present plan of the company is to manufacture bars in the various shapes from ¾ in. to 2 in. diameter, both iron and steel. It expects to manufacture concrete reinforcement, merchant bar iron and certain grades of tool steel. It is at present operating cold-rolled strip mills at Trenton, N. J., in the manufacture of certain types of cold-rolled steel and commercial sizes of strapping and is drawing plans for extensive improvements to these mills in the near future.

June sales of mechanical stokers, as announced by the Department of Commerce, amounted to a total of 59,719 hp. in rating. May was the largest month this year, totaling 100,513 hp., while June was the smallest. The average for the six months of 1923 was 77,400 hp. per month. The returns were made by 15 establishments throughout this period.

# CONTENTS

July 26, 1923

<b>Strength of Steels at High Temperatures</b> .....	193
Carbon and Alloy Steels Compared—Effects of Carbon Content and Heat Treatment on Plain Steels—Nickel and Chromium Steels	
<b>A French Steel Plant Built Since the War</b> .....	197
Schneider Works at Caen in Normandy Originally a Thyssen Enterprise—Native Ores and British Fuel Used	
<b>Rolling Steel and Non-ferrous Metals Into Rings</b> .....	204
How a Weldless Product Such as Ring Gear Blanks Is Made on a Commercial Scale at Cleveland	
<b>Corporation Closes in Basing Point Case</b> .....	209
Examiner Rules Against Evidence Intended to Compare Contract Prices with Quotations in THE IRON AGE	
<b>Laboratory Control in Automobile Castings</b> .....	212
Sand and Iron Subjected to Searching Analyses—Moisture and Porosity Tests—Diagrams for Presenting Data	
<b>German Prices Much Reduced by Mark Exchange</b> .....	219
Pig Iron Advanced 50 Per Cent in Four Weeks But Now \$10 a Ton—Steel Bars 1.05c. Per Pound	
Metal Working Plant Activities .....	196
Shipments of Refractories .....	196
Purchase of Steel & Tube Co. ....	201
Automobile Production in June .....	201
For Milling Hexagons on Valves .....	202
Nick-Bend Tests of Wrought Iron .....	202
Bench Stand for Portable Drill .....	202
Metal Sawing Machine .....	203
Wilputte Ovens for Mexico .....	203
Fractional Reference Gage Set .....	206
Expansion Reamer .....	207
Lead-Coated Steel Skylight .....	207
Bender for Light and Medium Stock ...	207
Horizontal Gang Drilling Machine .....	208
American Malleable Castings Association	208
Labor Turnover in Milwaukee .....	208
Costs of Production .....	210
Few Parts Feature New Hoist .....	211
Partial Rebuilding of Republic Stack....	211
Manufacturers Urged to Buy Coal .....	211
Production of Coke in June .....	214
New Heavy-Duty Steam Shovel .....	214
Editorials .....	216
What Is "Steel Common" Worth?—Production of Automobiles—Promoting Industrial Cooperation—The Ruhr and Coke Supplies—March of the Steam Power Plant	
New York Central Breaks Ore Record...	218
German Market Conditions .....	219
Mexico as a Customer .....	220
Belgian Market Strong .....	220
France as a Consumer of Machinery....	221
Increase in Ohio Foundry Operations ...	221
To Fight Pittsburgh Base .....	222
Rehearing in Coal Car Case .....	222
Export Market .....	223
French Business Improves .....	223
To Organize Steel Plant Labor.....	236
To Find New Uses for Sheet Steel.....	236
Railroad Equipment Buying.....	240
Fabricated Steel Business.....	240
Employment and Wages .....	241
For Abolishing the 12-Hour Day .....	242
Cold-Rolled Strip Cutting Extras.....	242
Westinghouse Scholarship Awards .....	242
Steel and Industrial Stocks .....	252
<b>Iron and Steel Markets</b> .....	224
<b>Comparison of Prices</b> .....	225
<b>Prices Finished Iron and Steel f. o. b. Pittsburgh</b> .....	238
<b>Prices of Raw Materials, Semi-Finished and Finished Products</b> ..	239
<b>Non-Ferrous Metal Market</b> .....	241
<b>Personal Notes</b> .....	243
<b>Obituary Notes</b> .....	243
<b>Machinery Markets and News of the Works</b> .....	244
<b>New York Jobbers' Prices</b> .....	254

ESTABLISHED 1855

# THE IRON AGE

EDITORS:

A. I. FINDLEY

WILLIAM W. MACON

GEORGE SMART

C. S. BAUR, *General Advertising Manager*

Member of the Audit Bureau of Circulations and of  
Associated Business Papers, Inc.

Published every Thursday by the IRON AGE PUBLISHING CO., 239 West 39th Street, New York

F. J. Frank, *President*

PRINTED IN U. S. A.

George H. Griffiths, *Secretary*

Owned by the United Publishers Corporation, 243 West 39th Street, New York. H. M. Swetland, *Pres.* Charles G. Phillips, *Vice-Pres.* A. C. Pearson, *Treas.* F. J. Frank, *Secy.*

BRANCH OFFICES—Chicago: Otis Building. Pittsburgh: Park Building. Boston: 410 Unity Building. Philadelphia: 1420-1422 Widener Building. Cleveland: Guardian Building

Detroit: 317 West Fort St. Cincinnati: First National Bank Bldg. Buffalo: 833 Ellicott Square. Washington: 26 Jackson Place, N. W. San Francisco: 320 Market St. London, Eng.: 11 Haymarket, S.W.1.  
Subscription Price: United States and Possessions, Mexico, Cuba, \$6.00; Canada, \$8.50; Foreign, \$12.00 per year. Single copy 25 cents.

Entered as second class matter, June 18, 1879, at the Post Office at New York, New York, under the Act of March 3, 1879.

## What Is Steel Common Worth?

We read in a financial journal that the United States Steel Corporation has spent over \$1,100,000,000 for new construction since its organization and has added about \$400,000,000 to its working capital. The new construction has added immensely to the producing capacity of the corporation. The financial paper deduced that steel common has a book value of \$260 a share, but proceeds to say "on a basis of earning power, a market price for steel common around \$260 a share would not be justified, although the property and liquid assets correspond with that figure."

Without verifying the data, they are probably nearly enough correct to furnish a text for a memorandum on the valuation of industrial property. It is sound economic doctrine that the value of capital goods is a capitalization, at the current rate of interest, of the fixed income which accrues therefrom to the owner. The accepted engineering formula that the value of industrial property is a capitalization of expected earnings is even more precise. The stock market, barring minor and ephemeral fluctuations arising from technical conditions, is generally trying, in the long-run, to give expression to this principle. The acceptance of the principle by no means precludes major changes in valuation even within a relatively short time. A property might be valued by a commission of engineers at a certain figure today; yet the same commission might give it a widely different value a year hence, owing to unforeseen changes altering the prospective earning capacity.

The cost value or the book value of property has to do with the matter in only one way, as to which it is unnecessary to digress at present. Additions to property may be made in a sincere way and be carried on the books at the real cost, and yet they may suffer great impairment of value by virtue of becoming useless or meeting altered conditions which reduce their earning capacity. For example, a shipping company that purchased a fleet at upward of \$200 per ton in 1918 would not think of carrying it at such a valuation now when ships sell in the market for very much less, their market price reflecting prospective earning capacity. The

difference, which in this instance is very large, represents an extinguishment of capital, a loss.

Without having any thought of entering upon an analysis of the present economic position of the United States Steel Corporation, it is misleading to talk about the "intrinsic value" (a foolish term, anyway) of the shares of it or any other corporation. Of course, nobody is going to sell in the market for \$90 to \$100 per share what is really worth \$260, except under duress. In fact, the market is trying to express the present expectation of the net return that is likely to accrue from a possession of steel common shares. That common shareholders are still getting only \$5 per share in dividends, while the workers employed by the company are getting greatly increased wages is a correlated affair. It reflects, among other things, the alteration in the division of the produce of industry, as between property and management on the one hand and labor on the other hand, that has come during the last ten years. Such, however, is an exhibition of the economic changes that have to be taken into account in estimating prospective earnings as a basis for the capitalization of property.

## Production of Automobiles

Production of passenger automobiles in June was 336,317, against 350,180 in May. The decrease, 4 per cent, should not be taken either as a seasonal decrease or as an evidence that automobile activity in general is falling off. So many factors enter that close comparisons are not justified. The industry is relatively new, and thus has had little opportunity to show what its normal seasonal fluctuations are. Production has grown so rapidly, moreover, that seasonal tendencies would be largely covered up. There are other factors that should deter one from inferring too much from the figures. There is, for instance, the strong trend toward the closed car, which the average individual is not likely to buy at the same time in the year as an open car.

While this year the production decreased 4 per cent from May to June, last year there was an increase in the same period of 13 per cent. That



indicated no general trend, however, since the bare fact is that in 1922 both June and August showed heavier production than either May or July. Production was simply heavy month about.

The monthly production figures have been as follows for passenger cars only:

	1922	1923
January .....	81,693	223,706
February .....	109,171	254,650
March .....	152,959	319,638
April .....	197,216	344,474
May .....	232,431	350,180
June .....	263,027	336,317

While the monthly figures are not much of a criterion as to trends, the half-yearly figures may be taken as really indicative. They are as follows for the past two years, according to the Department of Commerce monthly reports:

Second half 1921.....	789,414
First half 1922.....	1,036,497
Second half 1922.....	1,298,293
First half 1923.....	1,828,965

If these four numbers were taken, without any other or collateral information, they would show one thing only, that production has been increasing rapidly. The successive increases are 30 per cent, 25 per cent and 40 per cent. Without specific information of the industry we know, however, that continuous geometric increases even much smaller than thus shown are impossible, because eventually any one industry attempting this would have to absorb everything else, all the workmen, all the raw materials and all the public's money. With additional information that prior to the second half of 1921 there had been much heavier production, the case is different.

Another way in which one may go wrong in following figures too implicitly is to assume that there is really a rule as to what proportion of the steel output the automobile industry uses. Statements of the proportion must be taken as suggestive or typical rather than as absolute. Steel is distributed differently in different years. Production of automobiles was 2.3 times as great in the first half of this year as in the second half of 1921. One might take it that the proportion of steel used by the automobile industry increased. As a matter of fact, it decreased. Production of steel ingots in the second half of 1921 was about 9,250,000 tons, and in the first half of this year about 23,250,000 tons. The number of automobiles made, per thousand tons of ingots produced, decreased from 85 in the earlier period to 79 in the later period.

### Promoting Industrial Cooperation

A meeting of unusual importance was held in New York last week, at which editors, labor leaders, and representatives of some of the largest fabricating and erecting companies in the country considered subjects of national importance relating to the present labor situation. Some of the facts developed were encouraging as showing that representatives of capital and labor are cooperating to a greater extent in the metropolitan district than is generally known, and that there is reason for believing that even greater cooperation will be possible this year, not only in New York, but in other large cities and manufacturing districts.

One of the surprising statements made was that employers carrying on important building projects are not accepting as many apprentices as the unions are willing to grant them. Various excuses are given but none seem to be conclusive. Numerous employers have declined to take apprentices offered to them. Certainly, as long as this attitude is maintained, the employers have no right to complain of union restriction of apprentices.

Another subject which had very serious consideration, being discussed freely by employers and labor leaders, was the failure of many workmen to render the service which is due their employers. Representatives of union labor admitted frankly that in the past few years there has been a marked decrease in efficiency, but denied that soldiering has been encouraged by the unions. The cause generally assigned by the speakers was the baneful influence of the war, and the only remedy suggested was education by which workers could be aroused to keener appreciation of their obligations. It was pointed out that the inefficiency complained of is true not only in countries where there are more jobs than men, but also in countries in which there is much unemployment.

While meetings of the kind referred to have their chief value in enlightening the public as to what is actually being accomplished in improving the relations of capital and labor, they have a distinct influence in bringing about a more cordial feeling between employers and employees, who, after meeting at a time when there is no strike or other industrial disturbances, are on a footing more likely to lead to results when serious controversies arise. It is the old story of men who understand each other and who are willing to reason together getting along better than those who for lack of acquaintance base their judgments largely on prejudice and distrust.

### The Ruhr and Coke Supplies

The Ruhr occupation, as is well known, has upset completely the European production and distribution of coke and made Continental steel-making countries more dependent than ever on imported fuel. One index is the export movement of American and British coke. Exports of American coke to June 1 this year have been the heaviest in any peace-time period in many years and nearly equal to the war demand in 1918. Shipments took a sharp upward turn in April and May, the average for these two months being over 180,000 tons, while the year's monthly average to June 1 was 122,260 tons. In 1922, exports were only 38,000 tons per month. A statement difficult to explain is that in France "the American coke that has been tried, while satisfactory at first, has since proved to be of poor quality and in many furnaces American coke could only be used up to 15 per cent of the charge and at best up to 40 per cent."

Demand for British coke has also been very heavy at 165,140 tons per month for the first five months of this year. Of the May exports of

160,620 tons, Germany took 83,355 tons, France 25,390 tons and Belgium 22,960 tons. In 1920 British coke exports were only 63,470 tons per month and none was shipped to Germany. Even as late as December, 1922, Germany took only 13,500 tons out of the 120,000 tons exported from Great Britain, while Sweden absorbed one-third of the total. While no appreciable effect on the American coke market can be expected from the present exports, the situation is different in England. There prices have advanced, resulting in increased costs of pig iron and a slowing down in blast furnace output.

The Ruhr occupation has been the opening of Pandora's box, so far as the Continental steel market is concerned. Great Britain has appeared to profit, in view of her larger iron and steel exports, but there are accompanying drawbacks, and when steel again flows out of Germany, after the adjustment that must come with time, there is reason to believe that Great Britain, as well as the United States, will find cheap German steel a real factor in international competition.

### March of the Steam Power Plant

Vigorous exploration by power engineers is opening a new era of practice in steam-station production of electrical power. During the past year important proposals for the improvement of power-plant efficiencies have been tried and have proved practicable.

Some of the recent achievements and the problems arising with advancing steam practice were discussed last month in New York at the convention of the National Electric Light Association. The report of the association's prime-movers committee was especially noteworthy. It dealt with high steam pressures, heat balances, stacks, piping, coal and ash-handling equipment, pulverized coal and the removal of oxygen from the boiler feedwater. The report, which has been made available to non-members, is of interest to power engineers in industrial plants.

Two and three stages of feedwater heating, with or without economizers, to give feedwater temperatures between 250 and 300 deg. Fahr., is now conservative practice. Steam pressures around 500 lb. per square inch, with a total steam temperature of 700 deg. Fahr., will be used by some of the more venturesome of the public utility companies now building plants. Experimental installations of turbines and boilers are in progress for 1200 lb. per square inch pressure in this country.

Advances are being made in the use of pulverized coal. In this connection, thought is being given to the use of the radiant type steam superheaters which may be placed in the combustion chamber to protect the walls from excessive heat. The suggestion has been made, also, that steam generating surface be used in a similar manner. Protection of the walls of the combustion chamber when using pulverized coal would permit pre-heating the air used for combustion, thus improving the furnace efficiency.

Re-heating the steam at some point on its

path through the turbine, to eliminate moisture from the low-pressure stages, is proposed in connection with the use of high steam pressures. The steam would be withdrawn from the turbine and conducted to super-heaters located in the main boilers. It would be returned to the low pressure stages, super-heated to about its initial temperature. The thermodynamic efficiency of the turbine would be improved and erosion of the blading, due to moisture, would be lessened by this re-heating. When stage heaters are used and steam for heating the feed water is bled from the main turbine, moisture probably may be adequately eliminated without re-heating. In some quarters it is held that moisture separated from the steam centrifugally could be drawn off through the stage heaters.

The progress now being made in central station practice is well ordered. The intention evidently is not to push too rapidly into new ways. The successes and failures of experiment, however, properly fall to the lot of the large central stations whose principal business is the manufacture of energy. Industrial power plants, on the other hand, are in competition with central stations and cannot afford to ignore pronounced improvements in the practice of the latter. Inquiry might be directed profitably to determining what lag should exist between advances by central stations and corresponding advances in, say, steel mill power plants. The matter involves replacement of equipment and thus the charges for obsolescent machinery.

The possible gain in economy by increasing the steam pressure from 350 lb. to 1200 lb. appears not to warrant the replacement of otherwise satisfactory power generating equipment operating on 350 lb. pressure. It would be preferable to maintain the total steam temperature close to 600 deg. Fahr., though a temperature of 700 deg. appears to offer no difficulties. Stage heating of the feedwater may be adopted immediately, but pre-heating the air for the furnaces and the recovery of generator losses by using feedwater as a cooling medium in a closed system of generator ventilation are speculative.

### New York Central Railroad Breaks Ore Handling Record

Records for handling ore by the New York Central Railroad at Ashtabula were broken July 7 when 10 vessels with 83,086 tons were unloaded and the ore was sent forward to the furnaces in 1386 cars. In addition to the ore, 575 cars of coal was dumped into the boats, making a total of 1961 cars handled in one day. The previous high mark set at Ashtabula was made July 10, 1916, when the New York Central Railroad handled 80,179 tons of ore in 1608 cars. The ore handled on July 7 exceeded by 2907 tons the amount handled on the earlier date, but was shipped in 222 fewer cars, showing the increase in the average car load owing to the use of cars of greater capacity. The average car load on July 7 was 59.94 tons as compared with an average of 49.86 tons on July 10, 1916.

The New York Central Railroad also established a new record for handling ore at Ashtabula during the week ending July 7, handling during that week 293,670 tons in 4872 cars as compared with a previous record during the week ending Sept. 18, 1920, when 281,648 tons were handled and shipped in 5571 cars.



# German Prices Much Reduced by Mark Depreciation

Pig Iron Advanced 50 Per Cent in Four Weeks, But Now  
\$10 a Ton—Steel Bars Up 150 Per Cent, But  
1.05c Per Pound

BERLIN, GERMANY, July 23.—Foundry iron No. 1, which was advanced by the Pig Iron Association to 4,787,000 m. per metric ton (\$10.21 per gross ton at 0.21c. per 1000 m.) a week ago remains at the same figure today. (So great has been the fall of exchange in the week that the price equivalent a week ago was \$20.)

Steel ingots, which were 3,382,000 m. (\$19.75) per gross ton four weeks ago and 6,019,000 m. (\$25.22) last week, are now 7,630,000 m. (\$16.28).

Steel bars, which were 4,800,000 m. (1.25c. per lb.) four weeks ago and 8,600,000 m. (1.61c. per lb.) last week, are 10,995,000 m. (1.05c. per lb.).

Thin steel sheets are now quoted at 18,149,000 m. (1.73c. per lb.) against 14,093,000 m. (2.64c. per lb.) last week and 7,800,000 m. (2.03c.) four weeks ago.

## Sliding Scale Wage Discussed as Relief—More Mergers Reported—Stinnes Interests Extend Control to Banking

BERLIN, GERMANY, July 3.—As a result of the depreciation in exchange, prices are rising rapidly, and the entire economic structure of the country is affected by the prevailing unrest. A proper calculation of prices is almost impossible, as all factors are continually changing. The discussions between employers and employees are entering a phase of greater animosity as the purchasing power of the mark is rapidly declining. The workers in Berlin iron, steel and engineering plants recently decided to call a strike on the wage question, and considerable trouble is reported in other industrial centers. The metal workers have, however, thus far postponed their strike pending the result of negotiations between the Ministry of Labor and representatives of the employers and the trade unions for the introduction of "wertbeständige Löhne," wages not depreciated by the decline in the mark.

### Raw Materials Obtained Despite Allied Restrictions

Communication between the occupied area and other parts of Germany has been entirely stopped by the Interallied Commission for the Rheinland, except for the transportation of foodstuffs, for a fortnight. The separation of the important iron and coal-producing Rhenish districts was originally a severe blow to German industry, but it has since been able to secure sufficient coal and raw material from abroad, so that few firms are now experiencing any trouble from shortage of fuel or raw material. The new measure can, therefore, have but little effect on most German works.

The Upper Silesian iron industry (German) has booked numerous orders lately, especially on foreign account. Sheets are not active, as they are meeting with strong foreign competition, largely British. Pig iron, structural shapes, tubes and wires are in good demand despite the great advances in prices. Firms manufacturing specialties are well booked in advance. Following upon the 57 per cent increase in miners' wages and in the cost of material, coal prices are 50 per cent higher. This has affected pig iron, which is now quoted at 3,228,000 m. per metric ton for hematite and steel-making iron low in copper; 3,198,000 m. for foundry iron No. 1; 3,195,000 for foundry iron No. 3, and 3,185,000 for foundry iron, Luxemburg quality. Iron blown in with imported fuel has been fixed at 3,892,000 marks for hematite and steel-making iron poor in copper; 3,862,000 for foundry iron No. 1; 3,859,000 for foundry iron No. 3, and 3,849,000 for foundry iron, Luxemburg quality. Prices for rolled material have again been advanced by about 19 per cent. The

present prices per metric ton are given in the following table:

	Guiding Prices	
	Basic Bessemer Marks	Open Hearth Marks
Ingots .....	3,382,000	3,706,000
Blooms .....	3,820,000	4,184,000
Billets .....	4,041,000	4,459,000
Sheet bars .....	4,210,000	4,610,000
Structural shapes .....	4,773,000	5,166,000
Bar iron .....	4,800,000	5,200,000
Hoop iron .....	5,894,000	6,330,000
Wire rods .....	5,105,000	5,533,000
Sheets:		
5 mm. and heavier .....	5,710,000	5,874,000
3 to 5 mm. ....	6,061,000	6,537,000
1 to 3 mm. ....	7,089,000	7,565,000
Less than 1 mm. ....	7,800,000	8,232,000

Warehouse stocks in some grades are depleted, so that sellers have had to resort to rationing of customers. The demand from engineering companies has increased, especially from those working for export. Bar and hoop iron are in particularly heavy demand, but structural shapes can be fully supplied.

Scrap prices are also advancing heavily. Consumers are reluctant to pay the high prices demanded, but find it increasingly difficult to obtain material either from the producers or dealers. As new material is continually rising, producers of scrap are forced to reckon more closely with the prices received for their material and are loath to accept anything but the highest price obtainable. Lack of capital is in many cases a hindrance to operation on the old scale, as any delay in payment for raw materials results in heavy losses to the buyer as the result of the depreciation of the mark in the meantime. In the Rhenish districts business has practically come to a standstill.

### Numerous Mergers Reported

Renewed efforts toward forming "interessengemeinschaften" and fusions in industry are reported, and closer contact has been established with the Austrian industry and the southeastern markets. The Rhenish firm of Peter Westen has, together with the Mannesmann company, erected large steel works at Mediasch, Hungary, operated with the natural gas available in the district. The Schiepke Agricultural Machine Co. at Hermannstadt, Hungary, has also been absorbed into the new company. It is intended to extend these works and enlarge the sales organization in Southern Russia and the Balkans. The Epple-Buxbaum Upper Austrian Agricultural Machine Co. and the Landsberg and Munich Agricultural Machine companies at Munich have concluded a working agreement.

The Rhein-Elbe works and the Gesellschaft für Lindes Eismaschinen have agreed upon the formation of a new joint company for the exploitation of their patents and systems for the production of welding gas and other chemical products. The Otto Wolff concern has acquired the majority of the Rosenau Co., Düsseldorf, which is producing machine and engineering tools. The Hoesch steel works has concluded an agreement with the Federstahl Industry Gesellschaft Hirsch & Co. By the contract the Hoesch works acquires part of the shares of Hirsch & Co. in return for the supply of iron and steel material at present prices.

### Hugo Stinnes Enters Banking Field

The Hugo Stinnes interests have taken up large holdings in the Barmer Bankverein, a transaction which is arousing much comment. Stinnes is in this way adding considerably to his influence, as this bank is financing a large part of the Rhenish-Westphalian industry. It may be recalled that the concern some time ago acquired a large part of the shares of the Berliner Handelsgesellschaft, one of the greatest German banks, which is financing the A. E. G. It appears that the policy of the Stinnes concern is now enlarged to include banking, a field from which the other large industrials have generally held aloof.

## SEES MEXICO AS A CUSTOMER

C. V. Allen, Westinghouse Manager, Optimistic About Future of That Country

PITTSBURGH, July 23.—Mexico will soon be our best foreign customer if conditions there continue to improve as rapidly as they have recently, according to C. V. Allen, manager for Mexico, Westinghouse Electric International Co., who is back in the United States on a short business trip.

Mr. Allen is enthusiastic about the future of Mexico. The present Government is doing its best to get the country straightened out politically and Mexico is now in better condition than it has been since the revolution. The railroads, most of which are operated by the Government, are in good condition, and cover the country very thoroughly. The Government telegraph and postal services are dependable. Already the number of industries has increased considerably and all that is needed to make Mexico one of the most productive countries in the world is foreign capital. The most logical place for this capital to be obtained is the United States, and as soon as an agreement has been reached about property rights of foreigners, taxes and other matters of importance to foreign investors that are now being discussed by the American and Mexican Governments, Mexico will be a safe place for American investment.

With reference to these property rights, Mr. Allen said that Americans should not misjudge the Mexican Government, which is only trying to protect its natural wealth from foreign exploitation. Mr. Allen expects an agreement to be reached between the two Governments shortly.

One of the main hindrances to progress in Mexico

in the past, said Mr. Allen, was the ignorance of most of the poor Indian class, which numbers 12,000,000 out of the total population of 14,000,000 in the country. The present Government is doing its best to overcome this evil and is spending a great deal of money on popular education. Already the good effects of this policy can be seen, for the younger generation is fast learning to read and write. The change is particularly noticeable to one who returns to Mexico after an absence of a number of years, for servants will now be able to read and write and may, in fact, be able to speak English. As soon as the younger generation takes the place of its elders, Mexico should make rapid forward strides.

On the other hand, the fact that the large majority of Mexicans are still very poor and being dependent for their subsistence on agriculture alone, they cannot buy anything but the most simple products and not many of them. Their chief articles of consumption are clothes and the simplest kinds of food; and most of these are domestic products. Machinery will probably be the largest future import from the foreign countries, for there are practically no machinery manufacturers in Mexico, and, with the development of industries, much machinery will be needed. Already there are a number of large textile mills, some owned by foreigners and some by natives, and shoes now are being manufactured in large quantities. Moreover, with the development of the mines and oil fields, further imports of machinery will be needed.

To the United States rather than to Europe, Mexico will naturally turn for its imports because nearness to this country makes quick deliveries possible and reduces the expense of transportation. For the machinery trade, this proximity is of particular importance, as the necessity of securing repair parts with the least possible delay gives American machinery manufacturers a very great advantage over European competitors.

## BELGIAN MARKET STRONG

Mills Well Booked and Inclined to Await Higher Prices—Raw Materials Still High

ANTWERP, BELGIUM, July 7.—As expected a fortnight ago, the iron and steel market is firmer and prices are rising. The recovery seems to be more than a temporary revival and plenty of business is reported in all lines. Prices in all grades of iron and steel are rising, so that consumers no longer hesitate to place business and there is a general effort to boom orders at the now ruling prices in anticipation of still further increases. The market today is higher by 25 to 50 fr. per metric ton on all materials and even at these higher prices demand exceeds the available supply, so that, as a rule, quotations are accepted by buyers without discussion.

Numerous works are fully booked for the summer and others have retired from the market, evidently with the expectation that by waiting still better prices will be obtainable. Notwithstanding the increases, finished and semi-finished materials are regarded as cheap, considering the proportionately higher prices of raw materials, especially coal and coke. As a guide to the current market, the following prices per metric ton, f.o.b. mill, for steel and iron for domestic consumption, are a fair estimate.

	Fr.	Equivalent
Commercial iron No. 2.....	650	\$32.50
Commercial iron No. 3.....	675	33.75
Commercial iron No. 4.....	775	38.75
Heavy sheets .....	700	35.00
Light sheets .....	1,000	50.00
Bars .....	650	32.50
Rails .....	625	31.25
Beams (heavy) .....	625	31.25
Open-hearth steel .....	650	32.50
Bessemer ingots .....	500	25.00
Blooms .....	550	27.50
Billets .....	575	28.75

### Statistics Favorable to Export Business

If the situation were such as to permit the purchase of large tonnages for export at these prices, the American importer could secure many low-priced items, as the Belgian franc has been declining rapidly in foreign exchange and in contrast to other such periods, there is no evidence of an immediate recovery. The rate to-

day is 20 fr. to the dollar, against 17.50 fr. at the end of May. The tendency of foreign currencies is mostly upward and still higher rates are expected. Such a situation, although favorable to export business, is making importation impossible and is causing severe disturbances in several markets.

There is a good demand from foreign buyers, especially for pig iron and semi-finished materials. On the other hand, the largest and most important orders placed by Belgian consumers are for beams, angle iron and concrete iron. The largest foreign inquiries are from South America, Spain and eastern markets. British buyers have reappeared but important business in this direction has not yet been reported, although orders will undoubtedly be placed in the next few days as a result of the exchange advantage enjoyed by the pound sterling. Scrap is particularly scarce. Billets also are scarce, although sheet bars are offered more generally.

Export business on bars has been negotiated at 650 fr. per metric ton (\$32.50), f.o.b., Antwerp, but it is doubted that works will enter any further orders at this price. Bessemer sheets are quoted at 700 fr. per metric ton (\$35), f.o.b. Antwerp; round bars at 800 fr. per metric ton (\$40) and billets, because of the small tonnages available have been quoted for export at as high as 140s or 644 fr. per metric ton, f.o.b. Antwerp. This quotation was made with the pound sterling at 92 fr.

### Pig Iron Production Increasing

Lorraine works are quoting prices about on a par with the Belgian mill prices, billets, for instance, being held at 600 fr. per metric ton (\$30), f.o.b. Antwerp. Luxemburg mills have only small quantities for sale and are still suffering from an insufficient supply of coke. Since last month three more blast furnaces have been blown in in Belgium. On July 1, 38 furnaces were in blast, against 35 previously. Of the 38, three produce foundry iron for merchant purposes. More furnaces will be blown in shortly, among them a number producing steel-making iron.

Prices of Belgian phosphorus foundry iron are 470 to 480 fr. per metric ton (\$23.50 to \$24). Prices, f.o.b. Antwerp, are about the same. The demand being



heavier, only small quantities for prompt shipment are available and makers are not disposed to consider long contracts at present prices. Consequently the market is firm and prices maintain their upward tendency. Basic Bessemer is quoted at about 430 fr. per metric ton (\$21.50), f.o.b. Antwerp, but available quantities are small.

Fairly large tonnages of Luxemburg and Lorraine foundry iron have been sold in Belgium. Prices obtained were 460 to 470 fr. per metric ton (\$23 to \$23.50). These are also the ruling prices for export business, although some foreign orders have been booked recently at somewhat lower prices. French hematite pig iron has also been sold in Belgium. French works quoted 400 fr. per metric ton, French currency (480 fr., Belgian, or \$24). This is 105s. per ton, so it is evident that despite the latest reductions in prices of English hematite iron, there is no market for the British product at present, the current price being 117s. 6d. to 120s., c.i.f. Antwerp.

### France as a Consumer and Producer of Machinery

As a machinery producer for foreign markets France has not been of outstanding importance. According to figures compiled by the industrial machinery division of the Department of Commerce, French exports of industrial machinery before the war varied from \$19,165,000 to \$41,495,000 in value and from 4.5 to 6.6 per cent of the total international machinery trade of the world.

Since the war the French exports have risen to as high as 8.9 per cent of the world's total machinery trade (1919) and in 1920 and 1921 averaged 5½ per cent of the world's total.

As a consumer of machinery, in peace times as well as in war, the position of France is far higher than as a machinery producer and exporter. Before the war the American participation was not very great. During the war it became very important, but subsequently has again decreased. This decline has in part been due to the participation of Germany in this trade.

American manufacturers have an advantage that owing to the extensive use of American equipment in France during the war there is a much better recognition of the merits of American designs than was the case formerly. It is true that the French tariff is a serious obstacle to importation.

The coal market is firm. Orders are plentiful and producers are in arrears with deliveries. Prices have not been increased thus far, but it is quite impossible to book orders for prompt shipment and no business is being closed for future deliveries. Ordinary coke is now quoted at 144 fr. per metric ton (\$7.20). German origin furnace coke is 152.50 fr. per metric ton (\$7.65) and coke produced partially from Belgian, English, German or Dutch coking coals is about 200 fr. per metric ton (\$10).

Because of the unfavorable exchange on the Belgian franc with the pound sterling, importation of British coal will probably be restrained as far as possible, but this can only be a partial curtailment, as since the war Britain has been the largest provider of coal to Belgium among all the foreign sellers. Any such curtailment of purchases of coal abroad will depend upon receipts of German coal from the Ruhr. In June the total tonnage received was about 170,000 tons (25,500 tons of coke and 15,000 tons of briquettes).

In pre-war days the French machine tool industry was not highly developed, but in common with other things the war demand for munitions and other supplies created a very heavy demand for machine tools of all kinds and also for an improvement in the character of equipment produced. Following the armistice, in common with the rest of the world, there was a post-armistice boom with the result that we now find the French machine tool industry producing a better grade of equipment and on a greatly expanded basis when compared with what was known in pre-war days, and as a consequence there is a tendency for French manufacturers to increase their participation in the machine tool trade of the world.

Reports received in the Bureau indicate that very important changes are taking place in the industrial life of France which should have their effect on the market for the better types of machinery in that territory. There is a tendency to re-equip and modernize the factories and the methods of manufacture employed; the 8-hr. law has been repealed, and there is a tendency to place a larger share of production on the piece-work system. The advantages of standardized production are well recognized and where practical, employed. For these and other reasons it would appear at once that the position of France, not only as a producer but as a consumer of machinery as well, is of more than usual interest at the present time.

### Slight Increase in Operations of Ohio Foundries

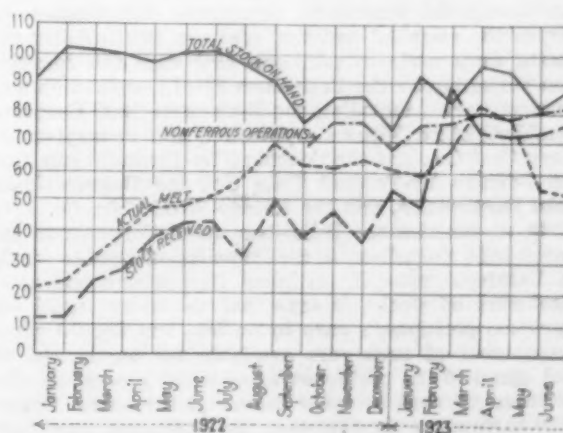
The Ohio State Foundrymen's Association, Cleveland, reports that operations of Ohio foundries for June show a slight increase over May. During May, operations were 81.12 per cent of normal or capacity. For June this increased to 81.27 per cent. June one year ago showed 51 per cent.

The normal melt figure is always equivalent to the capacity of foundries reporting. The capacity of all of the foundries reporting in June is 29,713 tons. Every foundry did not operate at capacity, however, and the actual melt was 24,144 tons, which gives a percentage of normal or capacity of 81.27 per cent.

Total stocks on hand is the total of all of the pig iron and all of the scrap iron on hand. During May, this figure stood at 82 per cent. June has increased to 87 per cent. June, 1922, stood at 101 per cent.

Stocks received, representing a total of all of the grades of pig iron and all of the grades of scrap iron, show a further decline. Last month this figure stood at 56.34 per cent. June figures tapered off to about 52 per cent. This compares with a figure of 42 per cent for June, 1922.

For June, non-ferrous operations were on the basis of 77.25 per cent of capacity or normal. May stood at 72.13 per cent. Some non-ferrous operators expect a slight tapering off during the remainder of the hot sea-



son, and look forward to more lively business starting with the fall months. The report says: "Buying of castings continues on a hand to mouth basis. Large contracts for future requirements are not numerous. The light and medium shops seem to be enjoying better business than those shops confined strictly to heavy castings."

For the first month in the past several, June shows a tapering off in total pig iron production. Foundry operators generally are not contracting for future pig iron; buying largely on hand to mouth basis."

## TO FIGHT PITTSBURGH BASE

### Representatives of Mid-Western States Meet— Mayor of Chicago Issues Statement

CHICAGO, July 23.—A joint interstate commission appointed by four Mid-Western States to fight the Pittsburgh basing plan of selling steel products held a meeting at the Union League Club, Chicago, on Saturday, July 21, with the idea of forming a permanent organization, but owing to the absence of B. F. Peek of Moline, Ill., another meeting will be called for this purpose. The commission was appointed by the governors of Illinois, Wisconsin, Iowa and Minnesota. Attorney-General Herman Ekern of Wisconsin, Attorney-General Clifford L. Hilton of Minneapolis and Senator John T. Denver of Illinois headed the delegation from their respective States. B. F. Baker, Kewanee, Ill., represented the Western Association of Rolled Steel Consumers and S. S. Thompson, Quincy, Ill., represented the Illinois Agricultural Association.

Mr. Peek, who is prominent in the agitation against the Pittsburgh base, was a member of the War Industries Board during the war. A feature of the meeting was a report on economic phases of the Pittsburgh basing plan prepared by a committee of economists, among whom were Prof. John R. Commons of the University of Wisconsin, F. B. Garver, professor of economics at the University of Minnesota, Ivan Wright, assistant professor of economics at the University of Illinois and William G. Raymond, dean of the College of Applied Science at the State University of Iowa. The commission will eventually go to Washington where it will appear before the Federal Trade Commission.

Mayor Dever of Chicago has instructed the corporation counsel of Chicago to make an investigation of the Pittsburgh plus plan to determine what steps, if any, should be taken by the city to cooperate in the fight against the practice. The letter of the mayor to the city council reads in part as follows:

## ASK FOR REHEARING

### Steel Companies File Petition in Assigned Coal Car Case

WASHINGTON, July 24.—Following the action of subsidiaries of the United States Steel Corporation in petitioning the Interstate Commerce Commission to reopen the so-called assigned coal car case, similar requests were made in petitions filed with the commission yesterday by the Bethlehem Steel Corporation and its subsidiaries, including the Bethlehem Steel Corporation, Bethlehem Mines Corporation, and Pennsylvania-Mary Coal Co., and the Seaboard By-Product Coke Co., the Chicago By-Product Coke Co., the Donner-Union Coke Corporation, and the Rainey-Wood Coke Co.

In its petition the Bethlehem Steel Corporation declares that the effect of the commission's order would be disastrous upon it, its labor, its business and upon consumers of steel. It says that the order would require the petitioner's cars to lie idle and unused when the number of such cars available for use at the 30 coal mines of the petitioner exceeds the percentage distribution of cars to other mines in the same district notwithstanding the fact that the Bethlehem Steel Corporation subsidiaries may be able and willing to cause all of its 4000 private coal cars to be loaded and shipped and notwithstanding the fact that the railroads may have the necessary trackage and equipment for such a movement. The Bethlehem Steel Corporation petition says that its subsidiaries consume 13,000,000 tons of coal annually.

The petition further declares that the corporation did not base its request for a reopening of the case solely upon technical rights regarding its property and interests affected but relied largely upon the public character and responsibility of the commission's functions and vast public importance of the commission's

"In various trade journals, and in the public prints it has been stated that this trade practice in the steel industry places an illogical burden on Chicago industry of between \$5,000,000 and \$8,000,000 annually. This directly increases the cost of all construction and building operations in which steel is used. It is further said in these publications to which I have referred that numerous industries are awaiting only the abolition of Pittsburgh plus to locate in the Chicago district and in one of these publications, the official publication of the Chicago Real Estate Board, that the abolition of this trade practice would result in the immediate location of more than \$200,000,000 of new industries and the employment of 50,000 additional workmen in Chicago and vicinity. I am advised that numerous municipalities, trade and civic organizations have addressed memorials to the Federal Trade Commission voicing their protests against the continuance of the artificial price fixing which so directly affects vital municipal activities."

### Four States Hold Up Pittsburgh Basing Case Until December

WASHINGTON, July 24.—Rebuttal proceedings in the Pittsburgh basing case were postponed by the Federal Trade Commission yesterday until Dec. 10 on request of attorneys-general of four States in the Middle West. The commission announced that the legislatures in Illinois, Iowa, Minnesota and Wisconsin had appropriated special funds for the use of attorneys-general in their respective States in conducting intensive studies into the problem of steel distribution and prices. The attorneys-general filed petitions with the Federal Trade Commission yesterday in order to comply with the legislation which authorized them to conduct an independent investigation of the proceedings brought by the commission against the United States Steel Corporation and others in the "Pittsburgh plus" case. Proceedings were originally scheduled for Aug. 6, but the State officials requested six months for their special inquiries.

order and the total inadequacy of the record to support it.

### Complaint of Coke Producers

The petition of the producers of by-product coke, owning 1900 standard steel hopper bottom coal cars and operating 530 by-product ovens consuming 10,250 tons of coal daily, declared that the order was subversive of their entire plan of operation of their business and destructive of the means adopted by them to assure their ability to meet public obligations. These oven interests among other operations sell gas to companies that supply municipalities. They declared that they could not store coal without making the cost of gas prohibitive for sale to the public and even if they could find customers for their gas and coke the effect of the order would be to increase the cost of public service gas and the use of such coke. It also was said that the order would mean the immediate destruction in large part of the values represented by their investment in coal cars and the denial absolutely to their use and enjoyment of their coal cars to the extent the placement of the cars at the mines serving them would exceed the pro rata share of available cars to which other mines in the district should be concurrently entitled. After calling attention to the general idea that the coking of coal so as to conserve the gas and the other by-products is a conservation of natural resources, the by-product coke makers said "the public interest arising from such conservation seems to petitioners to be fully as important as the possible public interest in the equalization of operation among the efficient and inefficient bituminous coal mines."

The Timken steel from which Timken bearings are made has a carbon content of from 0.15 to 0.20 per cent instead of a carbon content of 0.29 as was stated in a recently published Timken roller bearing advertisement.



## NO CHANGE IN EXPORT

### Far Eastern Business Moderate—Chinese Market More Active—Foreign Pig Iron Too High to Import

NEW YORK, July 24.—Export trade shows no particular improvement with the exception of Chinese merchant buying, which is beginning to exhibit slightly more animation than for several months. Japanese merchant buying in the United States is at a standstill, most of the current business being from the government and large interests. In South America the Chilean State Railways with a branch office in the United States at 141 Broadway, New York, is receiving bids on a quantity of manganese steel switches and crossings and will probably be in the market in a month or two for the annual rail requirements of the state railroads. Some activity in purchases of rails and railroad material is expected from the Argentine State Railways before long. The state railroads represent about 15 per cent of the total mileage of the country.

Railroad business from Japan at present is confined to a tender on five miles of 60-lb. rails from a privately owned railroad in Korea, which is a feeder line to the Korean State Railways, owned and controlled by the Imperial Government Railways. The 18,000 boxes of tin plate on which bids were opened by the Nippon Oil Co., July 16, were awarded to the New York branch of a Japanese export house. The tender of the Imperial Government Railways, pending for some time, calling for about 150 tons of steel sheet piling was awarded

to Suzuki & Co., New York, and placed with a large independent.

Chinese buyers are showing a slight renewal of activity and inquiries are current for second-hand plates, wire shorts, steel pipe, cold-rolled shafting of large size for use in connection with textile mills, sheet bar crop ends and some small lots of casting copper. Following a several weeks' period of refusal by Chinese merchants to pay the prices asked by sellers in the United States for wire shorts, business has been renewed in a few instances, the Chinese evidently being willing to transact business in this commodity at about \$50 per ton, f.a.s. American port.

In contrast to reports that low-priced foreign iron is available, importers continue to point out that Continental iron about equivalent to No. 2X foundry is quotable at not less than \$27.50 to \$28 per ton, c.i.f. Atlantic port, and importers of Scotch foundry are unable to offer No. 3 at better than about \$30 per ton, c.i.f. port. One importer of British iron is able to offer a Middlesbrough foundry iron, low in phosphorus at \$28 per ton, c.i.f. Atlantic port.

The Brazilian Minister of Public Works has authorized the Federal inspector of railroads to call for bids for the steel work on a railroad bridge over the Mossoro River, in the state of Rio Grande do Norte, the cost not to exceed \$1,000,000, says a report to the Bureau of Foreign and Domestic Commerce.

Recent British statistics on pig iron exports show in May 4281 tons of pig exported from the Middlesbrough district to the United States, the largest tonnage to any one country. Germany was second with 3862 tons and Australia third with 3745 tons.

## FRENCH BUSINESS IMPROVES

### Domestic Trade Good and Export Improves Slightly—Mills Delay Booking for Fourth Quarter

PARIS, FRANCE, July 13.—Business is flourishing with domestic consumers, and export shows considerable improvement. Prices have finally become stable with a distinct tendency to advance, exceptional price reductions no longer existing, as most works have been able to fill their books with highly satisfactory business. It is reported that many works are reluctant to accept orders at current prices for delivery in August or later, expecting further increases before the end of the year. As a result of the good export trade enjoyed by Belgium, offers from this source to French consumers are less numerous and of small importance. The United States and the United Kingdom are reported to be making fairly extensive purchases in France and Luxemburg, doubtless taking advantage of the present favorable rates of exchange. It is believed that British buyers are at present active in accumulating stocks in view of the possibility of a reduced French output because of the anticipated curtailment in deliveries of Ruhr coke and the prospect of miners' strikes in both France and England.

The French production of iron and steel in May totaled 393,400 metric tons of pig iron against 350,500 metric tons in April, and 399,200 tons of steel against 365,800 tons in April.

**Pig Iron.**—Demand has increased considerably and works are no longer inclined to quote for future deliveries, confining offers at present prices to delivery well within the third quarter. Prices vary with different furnaces and localities. Prices are generally based upon the facilities available to the furnace for obtaining coke supplies. The average quotation on medium phosphorus foundry iron, No. 3 P. L. is 380 to 390 fr. per metric ton, at furnace. A good export demand from Italy, Belgium and the United States is reported. Lorraine furnaces are quoting for export, f.o.b. Antwerp, 420 to 425 fr. per metric ton (Belgian currency) for Bessemer basic and 460 fr. (Belgian) for ordinary, chill-cast, pig iron, No. 3. Hematite is now quoted at 410 to 420 fr. per metric ton in the East and 430 fr. per metric ton at furnaces in the Southwest. British hematite, mixed numbers, is quoted at 525 fr. per ton

in the Paris area, which is too high to compete with the domestic product.

**Ferroalloys.**—The Comptoir Electro-Metallurgique announced new prices on July 1. Ferrosilicon, 20 per cent, has been reduced 50 fr. per ton to 700 fr.; 40 and 90 per cent are unchanged at 950 fr. and 2100 fr. per ton, respectively, and 75 per cent has been reduced 50 fr. per metric ton to 1650 fr. Ferrochrome, 2 to 4 per cent Cr. has been increased 30 fr. per metric ton to 2460 fr.; 4 to 6 per cent Cr. reduced 115 fr. per metric ton to 1785 fr.; 6 to 8 per cent Cr. reduced by 85 fr. per metric ton to 1735 fr.; and 8 to 10 per cent Cr. reduced 115 fr. per metric ton to 1695 fr. Spiegeleisen, 10 to 12 per cent Mn., is quoted at 520 fr. per metric ton in the East, 18 to 20 per cent Mn., at 620 to 635 fr. per metric ton.

**Semi-finished Material.**—Export trade is better, particularly sales to the United Kingdom, as, it is reported, British prices are 20 per cent higher than Belgian or French export quotations. As a result of increased demand works are booked to capacity for about 6 weeks. One firm in western France is stated to have booked business in semi-finished material for export to the United Kingdom at £6 15s. per metric ton, f.o.b. Antwerp. At present Bessemer basic blooms are being quoted at 900 to 940 fr., f.o.b. works, for domestic consumption and 560 to 565 fr. (Belgian currency), f.o.b. Antwerp, for export; billets 940 to 1000 fr., f.o.b. works, domestic consumption and 590 to 600 fr. (Belgian currency), f.o.b. Antwerp, for export. The building trades are active, but the season is rather well advanced. Beams and angles are quoted at 1100 to 1170 fr. per metric ton for domestic consumption and 640 to 670 fr. (Belgian currency), f.o.b. Antwerp, for export. Bars are quoted at 1120 to 1160 fr. per metric ton, base, for domestic consumption and 700 fr. (Belgian currency), f.o.b. Antwerp, for export.

**Sheets.**—Prices have somewhat stabilized and the following average prices are quoted for domestic consumption, f.o.b. works: heavy sheets, 1260 to 1360 fr. per metric ton; medium, 1500 to 1720 fr. and light, 1840 to 2000 fr.

**Coke.**—About 161,000 tons of Ruhr coke was imported in June. From imports of British and Dutch coals about 100,000 tons of coke is produced monthly, exclusive of collieries and steel works. British and American contracts have in most cases expired, and there is no inclination to renew.

# Iron and Steel Markets

## A MORE ACTIVE WEEK

### Extent of Current Demand Regarded Favorably

#### Pig Iron and Steel Output Less—Low Prices for German Steel

The week has brought more activity in some forms of finished steel, particularly plates and structural material, but not to the extent of affecting prices. There is a general expectation, also, that several more weeks will pass without a decisive change in the present positions of buyers and sellers.

It is evident that some of the smaller steel companies whose rollings have fallen considerably from the recent peak, must soon have larger orders to maintain profitable operations, but there are few signs today of either forward buying on the one hand or of price cutting to help order books on the other.

That early delivery business develops each week in the volume that has marked July is favorably construed in view of the continued smallness of cancellations and the moderate size of consumers' stocks.

Some further decline has come in blast furnace and steel works activities in the Pittsburgh and nearby districts. The Carnegie Steel Co. is running at 92 per cent of ingot capacity, while Pittsburgh and Valley independent companies are averaging above 80 per cent.

There has been some accumulation of steel ingots, and in semi-finished steel concessions have been made, as low as \$40 having been quoted on sheet bars and slabs outside the Pittsburgh and Valley districts, as against a \$42.50 contract price.

As for several weeks, what yielding has appeared in finished steel prices has been chiefly in sheets, which larger buyers have obtained at 3.75c. for black, and on hot-rolled flats. There is some laxity also on extras in the case of bars for cold finishing, and on bolts, nuts and rivets the market is easier.

The automotive industries, with all their favorable outlook, are no longer free buyers of steel, and the largest maker has been most frequently named in connection with suspensions of steel deliveries. A number of parts manufacturers are now on a 75 per cent operating basis.

The effect of the eight-hour day on steel costs will develop slowly. It may be a factor in the firm attitude of most sellers, but it is recognized that the turning point in the present market situation will come before much progress can be made toward the short day.

A number of fabricating shops that a few months ago held for full prices are now aggressive in seeking business. Including 2500 tons for Japan, and over 11,000 tons for private undertakings, the week's awards for steel work exceed 23,000 tons. The projected Palmer House in Chicago puts the total of fresh inquiries to fully 18,500 tons.

At Chicago the call for steel for oil tanks has kept up, and for 30,000 tons of such work now under inquiry there much of the steel would be drawn from mills farther east, Chicago plate mills not being able to promise the deliveries wanted. A Kansas fabricator has been obliged lately to go to a Pittsburgh mill for 5000 tons of steel for an oil tank contract.

Lower warehouse prices have appeared in several markets. Chicago reports a 15-cent concession on wire nails. At Cleveland there has been some shading by jobbers in galvanized sheets, and at certain points in Ohio prices on bars, plates and shapes have shown keener competition between Cleveland and Pittsburgh warehouses.

Active inquiries for railroad cars are less than 2000 in number. Little railroad equipment has been ordered but increased interest is noted in repair work.

A moderate increase in buying of pig iron is responsible for a more cheerful feeling in that market, but prices have gone lower. At Chicago and in the East, foundry and basic grades are down from 50c. to \$1 per ton, and while \$25 still prevails in the South, sales have been made as low as \$24. Charcoal iron has been reduced \$4.50 and silveries and Bessemer ferrosilicon, \$5. The largest transaction of the week was the purchase of 20,000 to 25,000 tons of foundry grades by a cast-iron pipe company.

German steel prices, though advanced over two and one-fourth times in four weeks, cannot keep pace with the fall of mark exchange. Though thin sheets are now over 18 million marks per ton, the equivalent American price is 1.73c. per pound. The equivalent of the steel bar price is 1.05c. Foundry iron is barely \$10.25 per ton and steel ingots \$16.25.

There are more predictions of severe competition from German steel, even in the United States, when the Ruhr settlement comes. Recently German bars were quoted for delivery at a Gulf port at \$8 per ton below the price of Pittsburgh bars.

Germany has bought shipbuilding material in Great Britain. India has bought 15,000 tons of rails from British mills, and Japan, Australia and South Africa are also in the rail market.

## Pittsburgh

### Moderate Improvement in Demand, But Buyers Are Conservative

PITTSBURGH, July 24.—In a number of directions the steel market reflects a slight increase in interest on the part of consumers and distributors, and the trade consequently is beginning to take hope that a revival in business is not far off. There has been no change in the character of demand, which still is for small individual lots, and in practically all cases, for very prompt shipment. Collectively, rather than individually, is the inquiry better than it has been recently, since there is no forward buying. The demand, however, is helpful in sustaining finished steel prices, since the orders generally are going to the mills with



## A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	July 24, 1923	July 17, 1923	June 26, 1923	July 25, 1922
No. 2X, Philadelphia...	\$26.56	\$27.56	\$30.76	\$28.76
No. 2, Valley furnace...	25.00	25.00	26.50	25.00
No. 2, Southern, Cin'ti...	29.05	29.05	29.05	22.55
No. 2, Birmingham, Ala...	25.00	25.00	25.00	18.50
No. 2 foundry, Chicago*	27.50	28.00	30.00	25.00
Basic, del'd, eastern Pa...	25.50	26.50	28.14	25.75
Basic, Valley furnace...	25.00	25.00	27.00	24.00
Valley Bessemer, del P'gh.	28.26	28.26	29.26	26.77
Malleable, Chicago*	27.50	28.00	30.00	25.00
Malleable, Valley	24.50	25.50	26.50	27.00
Gray forge, Pittsburgh...	26.26	26.26	27.76	26.26
L. S. charcoal, Chicago...	32.15	36.65	36.65	31.65
Ferromanganese, furnace...	117.50	117.50	125.00	67.50

### Rails, Billets, Etc., Per Gross Ton:

	Cents	Cents	Cents	Cents
O.-h. rails, heavy, at mill...	\$43.00	\$43.00	\$43.00	\$40.00
Bess. billets, Pittsburgh...	42.50	42.50	42.50	35.00
O.-h. billets, Pittsburgh...	42.50	42.50	42.50	35.00
O.-h. Sheet bars, P'gh...	42.50	42.50	42.50	35.00
Forging billets, base, P'gh.	47.50	47.50	47.50	40.00
O.-h. billets, Phila...	47.67	47.67	47.67	40.17
Wire rods, Pittsburgh...	51.00	51.00	51.00	40.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb...	2.40	2.40	2.45	1.70
Light rails at mill...	2.25	2.25	2.25	1.75

### Finished Iron and Steel,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	2.67	2.67	2.72	1.925
Iron bars, Chicago...	2.50	2.50	2.50	2.00
Steel bars, Pittsburgh...	2.40	2.40	2.40	1.70
Steel bars, Chicago...	2.60	2.60	2.60	1.75
Steel bars, New York...	2.74	2.74	2.74	2.04
Tank plates, Pittsburgh...	2.50	2.50	2.50	1.70
Tank plates, Chicago...	2.80	2.80	2.80	1.75
Tank plates, New York...	2.84	2.84	2.84	2.04
Beams, Pittsburgh...	2.50	2.50	2.50	1.70
Beams, Chicago...	2.70	2.70	2.70	1.75
Beams, New York...	2.84	2.84	2.84	2.04
Steel hoops, Pittsburgh...	3.15	3.15	3.30	2.50

\*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

The prices in the above table are for domestic delivery and do not necessarily apply to export business.

Sheets, Nails and Wire, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh.	3.75	3.85	3.85	3.15
Sheets, galv., No. 28, P'gh.	5.00	5.00	5.00	4.15
Sheets, blue an'l'd, 9 & 10	3.00	3.00	3.00	2.40
Wire nails, Pittsburgh...	3.00	3.00	3.00	2.40
Plain wire, Pittsburgh...	2.75	2.75	2.75	2.25
Barbed wire, galv., P'gh...	3.80	3.80	3.80	3.05
Tin plate, 100-lb. box, P'gh.	\$5.50	\$5.50	\$5.50	\$4.75

### Old Material Per Gross Ton:

Carwheels, Chicago...	\$20.50	\$20.50	\$21.50	\$19.50
Carwheels, Philadelphia...	20.00	20.00	22.00	17.50
Heavy steel scrap, P'gh...	17.00	18.00	20.50	17.25
Heavy steel scrap, Phila...	16.00	16.50	17.50	15.00
Heavy steel scrap, Ch'go...	17.00	17.00	17.50	15.50
No. 1 cast, Pittsburgh...	20.50	21.00	23.50	19.00
No. 1 cast, Philadelphia...	20.00	21.50	22.00	17.50
No. 1 cast, Ch'go. (net ton)	18.50	19.00	21.50	17.00
No. 1 RR. wrot. Phila...	18.00	18.00	21.00	17.50
No. 1 RR. wrot. Ch'go. (net)	14.50	14.50	15.00	14.00

### Coke, Connellsville, Per Net Ton at Oven:

Furnace coke, prompt...	\$4.50	\$4.50	\$4.75	\$14.00
Foundry coke, prompt...	5.25	5.25	5.50	14.00

### Metals

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York...	15.00	15.00	15.12½	14.00
Electrolytic copper, refinery	14.50	14.50	14.75	13.75
Zinc, St. Louis...	6.10	6.12½	5.70	5.95
Zinc, New York...	6.45	6.47½	6.05	6.30
Lead, St. Louis...	6.10	5.90	6.70	5.40
Lead, New York...	6.25	6.00	7.00	5.75
Tin (Straits), New York...	30.62½	38.00	40.37½	32.12½
Antimony (Asiatic), N. Y.	7.00	6.85	6.75	5.25

### Composite Price July 24, 1923, Finished Steel, 2.775c. Per lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets	July 17, 1923, 2.789c. June 26, 1923, 2.789c. July 25, 1922, 2.169c. 10-year pre-war average, 1.689c.
These products constitute 88 per cent of the United States output of finished steel	

### Composite Price July 24, 1923, Pig Iron, \$25.68 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham	July 17, 1923, \$25.93 June 26, 1923, 27.79 July 25, 1922, 24.95 10-year pre-war average, 15.72
---	--

the lightest order books, which might otherwise be sufficiently in need of business to cut prices. The mills which are best off in the matter of orders generally are shipping more tonnage than they are putting on their books and, with the exception of the Steel Corporation subsidiaries, the condition of producers is such that they must soon have larger orders to maintain profitable operation.

Not much trouble now is experienced by large lot buyers of black sheets to get them at 3.75c. base. Hot-rolled flats are easy, but these are the only real points of weakness that yet have cropped out, although there are reports that some of the makers of hot-rolled bars are not adhering rigidly to the extra of \$3 per ton recently established for bars of cold finishing quality. The automotive industry, notwithstanding the favorable reports as to production, is not a free buyer of steel at present. Manufacturers who have new models coming out for the 1924 season are rather slow to release specifications to the body and part makers and the latter cannot place orders for material until they know just what is required. The Ford Motor Co., despite the fact that in the first six months of the year it had an output at the rate of 1,800,000 cars

annually, is most frequently mentioned as a company which is cancelling or suspending tonnages.

A slight increase in activity in pig iron has been attended by further price recessions, but not by Valley furnaces. The latter, including the steel works' furnaces making merchant iron, are holding more firmly to the recent prices and letting the low-priced business go elsewhere. Decline in blast furnace activities in this and nearby districts has begun. The Republic Iron & Steel Co. has put off its No. 3 Hazelton furnace for relining and the Carnegie Steel Co. has blown out a furnace at Niles, Ohio, one at Sharon, Pa., and the Edith Furnace in Pittsburgh. The latter company now has 50 of its 59 furnaces making iron. The Jones & Laughlin Steel Corporation recently blew out one of its Aliquippa stacks, but still has 11 of its 12 furnaces in. Altogether, 119 furnaces out of a total of 138 in this and nearby districts now are making iron, while one furnace is banked. This is a loss of six furnaces from the recent peak point. Steel works operations show no material decline. Carnegie Steel Co. is running about 92 per cent ingot capacity and independent companies are averaging above 80 per cent. There is some accumulation of ingots on the yards of most companies

and while quoted prices show no variation, the market on semi-finished material is soft and concessions are being made to move tonnages promptly. As low as \$40 mill has been quoted by producers outside of the Pittsburgh and Youngstown districts on sheet bars and slabs.

The decline in scrap prices still is unchecked, heavy melting grade now being quoted at \$17 to \$18, delivered this district, as against the high point of the early part of the year of \$27 to \$27.50. Curtailment of coke production has been sufficient to check the decline in that product, but prices are not materially higher than they were a week ago.

**Pig Iron.**—Interest in the market on the part of melters has expanded slightly in the past week, but it has been confined largely to the foundries. The market on the steel-making grades has been quite as dull as it has been at any time recently. Westinghouse Electric & Mfg. Co., which recently inquired for 400 tons each of No. 2 and No. 3 foundry iron for Trafford and 700 tons of No. 1, and 350 tons of No. 2X for Cleveland, closed for these tonnages late last week. The iron for Trafford went to a western Pennsylvania furnace at \$25 for No. 2 and \$24.50 for No. 3, the freight to destination being \$1.13 per ton. This figures back to \$24.37 at Valley furnace, but no Valley producers yet have gone that low for No. 2 iron, although we note one recent sale of 100 tons of No. 2X iron at \$25 Valley furnace, which, deducting the silicon differential, would mean \$24.50 for No. 2 plain. The National Radiator Co., Johnstown, Pa., is in the market for 1000 to 1500 tons of No. 2 or No. 2X iron for each of its three plants at Trenton, N. J., Johnstown and New Castle, Pa. Union Radiator Co., Johnstown, Pa., is inquiring for 500 tons of No. 2 foundry. Malleable iron is a good deal of a drug on the market here as in other markets. We note one sale of 500 tons of this grade to a glass works foundry at \$24.50, Valley furnace. Carload lots of Bessemer iron have been sold at \$26.50, and the Midvale Co. at Nicetown, Pa., has put out an inquiry for 500 tons.

The freight is too high for this business to be placed locally. American Steel Foundries is seeking 1000 tons of basic for its Chicago works. This business hardly will come to nearby furnaces on account of the high freight. Low phosphorous iron now is available from the East at as low as \$33.50 delivered this district, but the Bethlehem Steel Co. still is quoting \$33, Lebanon, and the Valley producer of this grade is holding at \$34 furnace and reports the sale of about 100 tons at that figure.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic .....	\$25.00
Bessemer .....	26.50
Gray forge .....	\$24.50 to 25.50
No. 2 foundry .....	25.00 to 26.00
No. 3 foundry .....	24.50 to 25.50
Malleable .....	24.50 to 25.50
Low phosphorus, copper free (nominal) .....	34.00

**Ferroalloys.**—There has been no increase in the demand for ferroalloys since a week ago, and prices are entirely nominal in the absence of important transactions. Few consumers believe that the recent reduction of \$7.50 a ton in ferromanganese is the last one to be made; indeed, the expectation is common that another cut this time to \$110 is near at hand. As high as \$85, delivered, is quoted on 50 per cent ferrosilicon, but the most recent sale was at \$82.50, and it is believed that this price could be done again. Demand for this material is very limited. The long expected revision of prices of Bessemer ferrosilicon and silvery iron has materialized in a cut of \$5 a ton. Jackson, Ohio, producers now will take business in Bessemer ferrosilicon at \$43.50, furnace, for 10 per cent and in silveries at \$38 for 10 per cent. Prices are given on page 239.

**Semi-Finished Steel.**—Makers in this district still are holding at \$42.50 for billets, sheet bars and slabs, and while admitting that there is some accumulation of ingots, disclaim taking any business even for the purpose of reducing stocks at less money. Mills not in the Pittsburgh or Valley district, however, are not holding so firmly, having recently made quotations of \$40, mill, on both sheet bars and slabs. As an appraisal,

\$40 is nearer the real market today than is \$42.50, buyers being inclined to seek lower prices because of the decline in pig iron and scrap over the past two months, which has seen no material decline in semi-finished steel prices. Consumers also are holding back their specifications and orders for wire rods; this condition is accounted for partly by expectations of lower prices, although it is due in no small measure to the lighter demand for the products of rods. Skelp is very readily obtained at 2.40c. Prices are given on page 239.

**Wire Products.**—Some makers detect a slightly better undertone to the situation, reporting that buyers are showing more interest in the market than before in several weeks, and that the increased inquiry has been attended by some gain in actual orders. This improvement is seen more in nails and plain wire than in barbed wire or fence, the outlook for prosperity among the farmers being rather too dim at the moment to encourage distributors to load up on the latter products. The leading interest has about 11 weeks' business on its books, but unless there is a decided increase in orders in the very near future, most independent companies will have completed their obligations in the next 30 or 45 days. No intimations of lower prices are heard. Prices are given on page 238.

**Bolts, Nuts and Rivets.**—Makers are more eager for orders than buyers are to place them, and prices are not over and above firm. Specifications against old orders are fairly free. Discounts and prices are given on page 238.

**Steel Rails.**—The market for light rails still is extremely dull, largely because of the fact that so many coal mines are idle and the rate of operation of commercial mines that are running is so low. These sections rolled from billets or from standard rail crops still are held at 2.25c. base, but mills rolling them from old rails generally are quoting 2.15c. base, and have gone as low as 2.10c. base to get business.

We quote 25 to 45-lb. sections, rolled from new steel, 2.25c. base; rolled from old rails, 2.10c. to 2.15c. base; standard rails, \$43 per gross ton mill for Bessemer and open-hearth sections.

**Track Fastenings.**—New business in large spikes is about equal to shipments on old orders, but makers are in no such comfortable position with regard to small spikes, which are extremely slow of sale. Most makers also are well supplied with business in tie plates. Prices are given on page 238.

**Iron and Steel Bars.**—There is a fairly steady demand for small tonnages of merchant bars for early delivery, but big inquiries for future shipment still are lacking. Buyers have no trouble obtaining comparatively small amounts for prompt delivery at 2.40c. base Pittsburgh. Extras recently established for size, cutting, etc., are becoming effective, but the report is pretty frequent that all mills are not exacting the extra for bars or cold finishing.

We quote soft steel bars, rolled from billets, at 2.40c. base; bars for cold-finishing of screw stock analysis, \$3 per ton over base; reinforcing bars, rolled from billets, 2.40c. base; refined iron bars, 3.25c. base, in carload lots or more f.o.b. Pittsburgh.

**Hot-Rolled Flats.**—New business in the products under this heading is considerably smaller than the shipments against old orders and conditions are more favorable to buyers than sellers. This is particularly the case in the wider materials in which makers generally have light order books and also are having considerable competition from blue annealed sheet and skelp makers. The regular market on hoops, bands and hot-rolled strips is 3.15c. to 3.30c. base, but prices as low as 3c. have been made on strips by mills not rated as regular producers of that line. Prices are given on page 238.

**Structural Materials.**—There is no apparent weakening in prices, although some mills have reduced their obligations to a point where they are making better delivery promises. Considerable irregularity is noted in fabricated steel prices. Some shops filled up very heavily before prices reached their high point, while others held back to take advantage of the best prices obtainable. The former are not in a position to accept business except at full quotations, but the latter, lacking work, are going very low to get orders. An



erected price of around \$90 recently was quoted on a railroad viaduct in the Middle West by one of the latter group. The Rosenbaum Co., Pittsburgh, is planning to construct a large warehouse in this city taking about 3000 tons of steel; original plans recently were revised and fresh bids asked for. Plain material prices are given on page 238.

**Plates.**—Mills here are quoting on a large number of inquiries emanating from tank and car builders and from the railroads for repair work. These inquiries generally are for small lots, but the aggregate is fairly large. Prompt deliveries are required in all cases. The Steel Corporation is not quoting, as it cannot make deliveries within a specified time. The regular price of 2.50c. base, Pittsburgh, is still well observed, and there is one recent case where 2.60c. was done on a tonnage where delivery was very urgent. Prices are given on page 238.

**Tubular Goods.**—It is the experience of one local maker of steel pipe that orders for the first three weeks of this month show a substantial gain over those for the same period in June. But as a general proposition, while specifications against old tonnage, particularly in butt welded goods, are heavy, new orders continue to decrease. This is reflected in the tendency on the part of most makers to advance their delivery promises against lap welded goods. Plain end pipe in the larger dimensions now can be had very promptly, but where threads and couplings are provided, delivery promise is not so good because of the scarcity of labor. Shipments by most mills this month will fall behind those of June because of a lighter production. Some fair-sized inquiries for line pipe are coming out and a local mill recently took 20 miles of 6-in., or about 1000 tons. The supply situation in wrought iron pipe is much easier than it was over the first half of the year. Smaller sizes of boiler tubes still are hard to secure promptly, but the larger sizes now can be placed for shipment as early as five and six weeks. There is no change in prices nor any suggestions of an immediate change. Discounts are given on page 238.

**Sheets.**—Buyers still are moving with considerable caution. They are taking most of the tonnage due them on old orders, but are not much concerned about future requirements. Deliveries against new business are so prompt that the tendency is to let the mills carry the stocks. Auto body makers are doing little at present because the manufacturers are rather slow to release specifications of their new models. The price situation shows no particular change; most mills are holding to the regular market quotation, but there are some makers with light order books who are taking business in black sheets at 3.75c. base, or \$2 a ton below the regular market. Sheet mill operations are heavier than they were over the first two weeks of the month, but are not yet back to the late June rate. Prices are given on page 238.

**Tin Plate.**—This market is very firm as all makers are heavily obligated against the production for the current quarter, and because of the inefficiency of labor, due to the heat, most of them have fallen behind in their shipments. Perishable food container requirements are unusually heavy this year, and in trying to meet this demand it has been necessary for some producers to curtail allotments for other purposes.

**Cold-Finished Steel Bars and Shafting.**—Business is dull with most makers of this district, this being due in no small measure to the fact that the automotive industry is between seasons and is doing very little buying. There is no shading of prices, chiefly because increased costs of hot-rolled bars involved in the recent revision of extras are becoming effective and considerably reduce profits; indeed, there is a possibility of a new card of extras on cold-finished steel bars, which would restore the former price alinement in the two kinds of bars. Ground shafting still is quoted at 3.65c. base.

**Cold-Rolled Strips.**—Most producers have fair-sized order books, but as new business is pretty light and there are some suspensions from the automotive industry, they are steadily reducing their backlogs. The quotable market still is 5c. to 5.25c., base, Pittsburgh, and thus far there has not been much trouble in main-

taining these prices. The test is ahead, however, unless there is a decided betterment in demand in the near future.

**Coke and Coal.**—Coke quotations are holding at about the levels of a week ago, but the tendency is somewhat stronger due to the fact that there has been a steep cut in production. While there are still occasional sales of "distress" tonnages of furnace coke as low as \$4.25 per net ton ovens, the more common minimum is \$4.50, while \$5 is the going price on fair sized lots of high grade coke. There is practically no contract market because furnaces now active, which are not covered for the present quarter, are meeting their requirements on spot offerings. Spot foundry coke is quotable from \$5.25 to \$5.75, while the contract market ranges from \$6 to \$6.50 with most producers. Light production is sustaining the coal market rather than the size of the demand. Slack coal finds a fair demand and is firm at \$1.25 to \$1.30 per net ton at mines, while gas slack is priced at \$1.40 to \$1.50. Mine run steam coal holds at \$1.75 to \$2, mine run coking coal at \$2.25 to \$2.35, and gas coal from \$2.35 to \$2.50.

**Old Material.**—The market still is seeking a trading level and still lower prices have been reached since a week ago. Consumptive demand is almost entirely lacking and dealers are confining purchases for the most part against short sales, and deliveries against these sales are not so urgent that they are at all anxious to buy. It has been demonstrated that none of the steel plants in this district will pay more than \$18 for heavy melting steel and dealers' prices range anywhere from \$17 to \$18; that becomes the quotable range on this grade, although dealers would hardly take an order of any size from mills at less than \$17.50, and \$18 is the minimum selling price of several dealers. A Brackenridge, Pa., consumer late last week bought 500 tons of machine shop turnings at \$11.75, and since then has bought at \$11.50 and even as low as \$11. The market is quotable on this grade at from \$11 to \$12, as the latter price has been paid within the week on overshipments. Turnings are freely offered in Detroit at \$7 and that would mean \$11.28, since the freight is \$4.28. Railroads are pressing much scrap on the market. The Norfolk & Western Railway had a supplement list of 3700 gross tons on its July list and the Pennsylvania Railroad is trying to move much tonnage outside of its formal monthly lists. It is a buyers' market.

We quote for delivery to consumers' mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton	
Heavy melting steel.....	\$17.00 to \$18.00
No. 1 cast, cupola size.....	20.50 to 21.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington; W. Va., and Franklin, Pa. ....	19.00 to 19.50
Compressed sheet steel .....	16.50 to 17.00
Bundled sheet sides and ends....	15.00 to 15.50
Railroad knuckles and couplers..	20.00 to 21.00
Railroad coil and leaf springs..	20.00 to 21.00
Low phosphorus standard bloom and billet ends.....	22.00 to 23.00
Low phosphorus plates and other grades .....	21.00 to 22.00
Railroad malleable .....	18.50 to 19.00
Steel car axles .....	21.00 to 21.50
Cast iron wheels.....	19.00 to 19.50
Rolled steel wheels.....	20.00 to 21.00
Machine shop turnings.....	11.00 to 12.00
Heavy steel axle turnings.....	15.50 to 16.00
Short shovelling turnings.....	15.00 to 15.50
Heavy breakable cast .....	17.50 to 18.00
Stove plate .....	15.00 to 15.50
Sheet bar crop ends .....	21.00 to 22.00
No. 1 railroad wrought .....	15.00 to 15.50
Cast iron borings .....	15.00 to 15.50

### Steel & Tube Co. of America Offices Are Moved to Youngstown

YOUNGSTOWN, July 24.—The auditing, sales and traffic departments of the Steel & Tube Co. of America, Chicago, recently purchased by the Youngstown Sheet & Tube Co., have been moved to Youngstown, affecting more than 100 employees. The business of the company will be maintained independent of that of the Sheet & Tube until litigation relative to the sale is disposed of. The Steel & Tube organization will then be merged with that of the Sheet & Tube Co., if the merger is not prevented.

## Chicago

### Strong Pressure for Deliveries of Finished Material—Pig Iron Lower

CHICAGO, July 24.—Reports of industrial curtailment do not check with pressure upon the Chicago steel mills for deliveries on contracts, according to a statement of the leading Chicago steel interests. It is further stated that the tonnage on mill books is sufficient to carry through the third quarter at the present rate of production. There is no evidence of any recessions in prices except on wire nails, which are so much easier that local warehouses have reduced their prices 15c. per 100 lb.

New business is mostly in small lots for early shipment, and these orders the Chicago mills are usually able to take care of, but large tonnages for specific work, on which early delivery is necessary, are often being passed up by the local mills. A Kansas fabricator was obliged to go to a Pittsburgh mill for 5000 tons of steel for oil tanks recently contracted for. Pending inquiry for oil tanks, if developed into orders, will call for a total of 30,000 tons of steel, mostly plates, and Chicago mills have been unable to give protection on all of this tonnage with the required promises of delivery. The Pere Marquette Railroad is in the market for two car ferries, which will take 5000 tons of steel, and some or all of this business, if placed, may go to mills in other districts. There is a fair demand for structural steel, and deformed steel bars for structural projects. Outside mills are participating in a larger share of this business. A new structural project shortly to be in the market is the new Palmer House, which will require 10,000 to 12,000 tons of steel. There is a slight pick-up in car work, largely repairs.

Further recessions in pig iron prices have occurred. Northern foundry and basic iron are down 50c. a ton, the leading local producer now quoting \$27.50. Producers of Lake Superior charcoal iron have announced a new price of \$29, furnace, and Jackson County, Ohio, makers of silvery iron have reduced quotations \$5 a ton, the present basis being \$34.50, furnace, for 8 per cent.

Production by Chicago steel companies continues at the high rate of the past several weeks. Hot weather has cut in slightly on output of finishing mills, but ingot production is practically undiminished. The change to the 8-hr. day figures largely in present calculations of Chicago steel companies, but the leading independent has announced no plans for putting the new workday into effect other than to follow whatever course the Steel Corporation mills adopt.

**Pig Iron.**—So little pig iron business is in sight that the leading local producer made a further bid for tonnage this week by reducing its open quotations 50c. a ton, making foundry iron \$27.50, furnace, for fair sized lots and \$28 for carloads. The usual 50c. differentials obtained on iron of higher silicon content. Malleable and basic iron are also quoted at \$27.50. Producers of Lake Superior charcoal have announced a reduction of \$29, furnace, making the delivered prices \$32.04 or \$32.15, Chicago, depending upon the freight rate. The former price was \$33.50, furnace. Jackson County, Ohio, makers of silvery iron have announced reductions of \$5 a ton. Thus, 8 per cent., which has nominally been quoted at \$39.50, furnace, is now quoted at \$34.50. Adding the freight rate to Chicago of \$4.79 makes the delivered price here \$39.29. The only important foundry iron business of the week was the purchase by the Holland Furnace Co., Holland, Mich., of 1000 to 1500 tons of iron, analyzing 2.75 to 3.25 per cent silicon, for delivery at its Holland and Cedar Rapids, Iowa, plants. The Michigan business is reported to have been taken by Detroit or Toledo furnaces at about \$30, delivered, Holland. Deducting a freight rate of approximately \$3 a ton, the furnace price was \$27 for this grade of iron or \$26, base. This is apparently about \$1 a ton lower than Detroit and Toledo furnaces have been quoting. The Cedar Rapids tonnage

will be shipped from Chicago furnaces, which, it is stated, did not compete for the Michigan business, as to meet Michigan prices it would have been necessary to quote not over \$26, base, f.o.b. Chicago furnace. The low prices named by some outside furnaces are making it impossible for Chicago iron to reach into competitive districts without considerable concessions. The sale, for example, of 3000 tons of malleable iron to an Indianapolis company at \$26.77, delivered, puts Chicago iron several dollars a ton out of the running. Southern iron is weak at \$25, Birmingham, with \$24 being named by some merchants. The American Steel Foundries is in the market for 1000 tons of basic. A Wisconsin melter is inquiring for 800 tons of malleable.

Quotations on Northern foundry high phosphorus malleable and basic irons are f.o.b. local furnace and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yard or when so indicated, f.o.b. furnace other than local.

Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago..	\$32.04 to \$32.15
Northern coke, No. 1, sil. 2.25 to 2.75 .....	28.00 to 28.50
Northern coke, foundry No. 2 sil. 1.75 to 2.25.....	27.50 to 28.00
Malleable, not over 2.25 sil.....	27.50 to 28.00
Basic .....	27.50 to 28.00
High phosphorus .....	27.50 to 28.00
Southern No. 2.....	30.01 to 31.01
Low phos., sil. 1 to 2 per cent, copper, free .....	35.50 to 36.00
Silvery, sil. 8 per cent.....	39.29

**Ferroalloys.**—There is very little demand for ferroalloys, most consumers being pretty well covered for the year. Prices are unchanged except on 50 per cent ferrosilicon, which is now available at \$88 to \$90, delivered, with indications that even the lower price could be shaded on attractive business.

We quote 80 per cent ferromanganese, \$125.06 to \$125.88 for all deliveries; 50 per cent ferrosilicon, \$88 to \$90, delivered; spiegeleisen, 18 to 22 per cent, \$53.58, delivered.

**Structural Material.**—The Citizens' Committee to Enforce the Landis Award issues a statement commenting on the falling off in building permits, which in June, the statement says, were only about 25 per cent of the value of the April permits and nearly \$10,000,000 less than in June of last year. Building permits for June in Chicago were lower than for any month since October, 1922. Notwithstanding this situation, steel fabricators are figuring on a very fair amount of work for mid-summer, and in any instances where delivery is a primary consideration the steel will be obtained from mills east of here. Contrary to expectations, the Ford Motor Co. plant at St. Paul, requiring 8000 tons, has not been awarded, but it is expected that the fabrication will be divided between two fabricators in the twin cities. Bids will be executed for shortly on 10,000 or 12,000 tons for the New Palmer House, Chicago.

The mill quotation on plain material is 2.60c. to 2.70c., Chicago. Jobbers quote 3.30c. for plain material out of warehouse.

**Plates.**—New inquiries for oil tanks are in the market, the total of steel that will be required if all of this business is placed being about 30,000 tons. Chicago mills probably will not be able to make the desired deliveries on this material and a good portion of it will undoubtedly go East. A Kansas fabricator, recently awarded tanks requiring approximately 5000 tons of steel, has placed this in the Pittsburgh district, being unable to get satisfactory deliveries from the Chicago district mills. The Mid-West Engine Co., Indianapolis, has placed 1500 tons of plates and shapes for car building. The Pere Marquette Railroad is asking bids on two car ferries requiring 5000 tons of steel, mostly plates. Plate prices are very firm and there is still pressure for deliveries from railroads and tank builders.

The mill quotation is 2.60c. to 2.80c., Chicago. Jobbers quote 3.30c. for plates out of stock.

**Reinforcing Steel.**—There is a fair degree of activity in reinforcing steel, but most of the inquiries and orders are for small lots, not exceeding 50 to 60 tons. The largest job of the week is 1100 tons of rail and billet steel bars for the Fourteenth Street Viaduct, St. Louis, which went to the Laclede Steel Co. The Scullin Steel



Co. was awarded 500 tons for the Cahokia power plant at East St. Louis. Other jobs let are as follows:

Tilden and Franklin Schools, St. Paul, Minn., 100 tons, to Corrugated Bar Co.

Main and Perry Building, Peoria, Ill., 125 tons, to Corrugated Bar Co.

Holy Family Hospital, Manitowoc, Wis., 125 tons, to Corrugated Bar Co.

**Bars.**—There is a good demand for bars for building construction with considerable new business in sight, but in merchant bars consumers are largely satisfied with shipments on their contracts and new orders are for small amounts for early shipment.

Mill prices are: Mild steel bars, 2.50c. to 2.60c.; Chicago; common bar iron, 2.50c. to 2.60c., Chicago; rail steel, 2.30c., Chicago mill.

Jobbers quote 3.20c. for steel bars out of warehouse. The warehouse quotation on cold-rolled steel bars and shafting is 4.55c. for rounds and 5.05c. for flats, squares and hexagons.

Jobbers quote hard and medium deformed steel bars at 3c. base; hoops, 4.55c.; bands, 3.95c.

**Wire Products.**—Local jobbers have reduced prices on wire nails 15c. per 100 lb., this representing approximately the concession some mills have made to get business. Nails seem to be weaker than other wire products.

We quote warehouse prices f.o.b. Chicago: No. 6 to No. 9 bright basic wire, \$3.90 per 100 lb.; extra for black annealed wire, 15c. per 100 lb.; common wire nails, \$3.80 per 100 lb.; cement coated nails, \$3.25 per keg.

**Bolts and Nuts.**—There is no improvement in the volume of specifications coming in on third quarter contracts, many consumers being well taken care of by material coming to them on second quarter contracts. Better specifications are expected next month. Prices are still weak and concessions are frequently offered on desirable business.

Jobbers quote structural rivets, 4c.; boiler rivets, 4.10c.; machine bolts up to  $\frac{3}{4}$  x 4 in., 45 and 5 per cent off; larger sizes, 45 and 5 off; carriage bolts up to  $\frac{3}{4}$  x 6 in., 40 and 5 off; larger sizes 40 and 5 off; hot pressed nuts, squares and hexagons, tapped, \$2.50 off; blank nuts, \$2.50 off; coach or lag screws, gimlet points, square heads, 50 and 5 per cent off.

**Sheets.**—Although there were reports a few weeks ago of slight concessions on sheets by one or two mills, particularly on black sheets, the market is now firm and there is little, if any, inclination to make concessions. The continued high productive rate of the automobile industry is undoubtedly a factor in this strength.

Mill quotations are 3.85c. for No. 28, black 3c. for No. 10 blue annealed and 5c. for No. 28 galvanized, all being Pittsburgh prices, subject to a freight rate to Chicago of 34c. per 100 lb.

Jobbers quote f.o.b. Chicago, 4.35c. for blue annealed, 5.20c. for black and 6.35c. for galvanized.

**Rails and Tracks Supplies.**—Several roads are tentatively inquiring about their 1924 rail requirements. Local producers believe that a fairly large rail tonnage for next year will be placed in addition to that recently put on mill books, most of which will be rolled this fall and winter for early spring delivery. Orders for track supplies and specifications on contracts continue to come in at a very good rate.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled steel, 2.25c., f.o.b. makers' mills. Standard railroad spikes, 3.25c. mill; track bolts with square nuts, 4.25c. mill; iron tie plates, 2.85c. mill; steel tie plates, 2.60c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.90c. base and track bolts, 4.90c. base.

**Cast Iron Pipe.**—The American Cast Iron Pipe Co. has been awarded 570 tons of 8-in. pipe by the city of Chicago and the United States Cast Iron Pipe & Foundry Co. has received the Dayton, Ohio, work amounting to 680 tons. The city of Milwaukee will defer the purchase of about 2000 tons of 54-in. low pressure service main until after Jan. 1, both because new Riverside pumping station cannot be completed until after July 1, 1924, and in anticipation of the possibility of a decline in price by the time the material is actually needed. While demand has fallen off as compared with earlier months of the year, a fairly good volume in small orders is being received from industrial buyers. Two or three pending inquiries from industrial companies total several thousand tons. Defiance, Ohio, will close bids July 30 on 40 tons, class B.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., \$64.20; 6-in. to 12-in., \$60.20; above 12-in., \$58.20 to \$59.20; class A and gas pipe, \$5 extra.

**Old Material.**—Further railroad offerings this week amount to 12,000 tons, of which the Burlington offers 6000 tons, bids closing July 26, the Santa Fe, 4000 tons, bids closing July 24, and the Chicago, Milwaukee & St. Paul has 2000 tons on which bids close July 30. There is ample supply of scrap, in which offerings from the railroads predominate. Prices on several items are off slightly from last week's quotations. Some brokers believe that prices are due for a further decline of \$2 or \$3 a ton on the average, while others advance the opinion that prices are now scraping bottom. A factor receiving attention is to what extent the crop movement will prevent the free shipment of scrap a month or two hence. There is a disposition on the part of some industrial producers to hold their scrap for higher prices if they have the necessary storage space, but yard dealers as a rule are not inclined to stock up at present prices, which they believe to be high for speculative purposes.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$22.00 to \$22.50
Cast iron car wheels	20.50 to 21.00
Relaying rails, 56 and 60 lb.	28.50 to 29.50
Relaying rails, 65 lb. and heavier	32.00 to 35.00
Rolled or forged steel car wheels	20.00 to 20.50
Rails for rolling	18.00 to 18.50
Steel rails, less than 3 ft.	19.25 to 19.75
Heavy melting steel	17.00 to 17.50
Frogs, switches and guards cut apart	17.00 to 17.50
Shoveling steel	16.50 to 17.00
Drop forge flashings	11.50 to 12.00
Hydraulic compressed sheets	13.25 to 13.75
Axle turnings	14.25 to 14.75

Per Net Ton	
Iron angle and splice bars	22.00 to 22.50
Steel angle bars	15.50 to 16.00
Iron arch bars and transoms	22.00 to 22.50
Iron car axles	26.00 to 26.50
Steel car axles	18.00 to 18.50
No. 1 busheling	13.00 to 13.50
No. 2 busheling	10.50 to 11.00
Cut forge	15.00 to 15.50
Pipes and flues	10.50 to 11.00
No. 1 railroad wrought	14.50 to 15.00
No. 2 railroad wrought	15.00 to 15.50
Steel knuckles and couplers	18.50 to 19.00
Coil springs	19.50 to 20.00
No. 1 machinery cast	18.50 to 19.50
No. 1 railroad cast	18.00 to 18.50
No. 1 agricultural cast	18.00 to 18.50
Low phos. punchings	16.50 to 17.00
Locomotive tires, smooth	15.50 to 16.00
Machine shop turnings	9.50 to 10.00
Cast borings	12.00 to 12.50
Short shoveling turnings	12.00 to 12.50
Stove plate	14.50 to 15.00
Grate bars	12.75 to 13.00
Brake shoes	14.00 to 14.50
Railroad malleable	20.00 to 20.50
Agricultural malleable	17.50 to 18.00

## Canadian Scrap Market

TORONTO, ONT., July 23.—Business in the Canadian iron and steel scrap market is still at a very low level. Consumers are showing no interest in their requirements for the future, but both steel plants and foundries are placing small tonnage orders for scrap for spot delivery. In the Montreal market practically the same conditions exist as those ruling in Toronto. Consumers are picking up odd lots of scrap, but show no interest in future needs. While no change is reported in Toronto dealers' buying prices, Montreal dealers have made slight downward revisions on some commodities during the past week. Dealers are now offering the following prices for iron and steel scrap:

Dealers' Buying Prices		
Gross Tons		
	Toronto	Montreal
Steel turnings	\$10.00	\$9.00
Machine shop turnings	10.00	9.00
Wrought pipe	8.00	8.00
Rails	15.00	14.50
No. 1 wrought	15.00	15.00
Heavy melting steel	15.00	13.00
Steel axles	18.00	18.00
Axles, wrought iron	21.00	24.00
Net Tons		
Standard car wheels	16.00	17.00
Malleable	16.00	16.00
Stove plate	16.00	16.00
No. 1 machinery cast	20.00	21.00

## New York

### Much More Activity in Pig Iron, but Lower Prices Are Named

NEW YORK, July 24.—Sales of pig iron during the past week have been larger than for any week in a number of months, but new low prices have been named. The Warren Foundry & Pipe Co. purchased from 20,000 to 25,000 tons of foundry grades, on a large part of which the price was \$25, furnace, for No. 2 plain. There is no evidence that any of the tonnage was placed on a lower basis, although some of the lower grades may have been purchased at the usual differentials. The Burnham Boiler Co., which has been inquiring for 5700 tons of No. 2X and No. 2 plain for the last half of this year, has purchased about half that tonnage. The Gould Coupler Co. has bought about 500 tons of malleable and is in the market for 200 tons of basic. The New York Air Brake Co. has bought 2400 tons of foundry grades for delivery in August, September and October. A sale of 5000 tons of foundry iron has been made to a melter not in the immediate New York district. Fair inquiry is pending, but a report that a radiator company was in the market for 5000 to 10,000 tons for the remainder of the year has proved incorrect. A pump company is inquiring for 800 tons and there are several inquiries for 1000 to 1500 tons of various grades. A Connecticut foundry company has closed for 1000 tons of foundry iron. The ruling quotation in eastern Pennsylvania and Buffalo is now \$25 and reports of lower than that figure at Buffalo are not confirmed.

We quote delivered in the New York district as follows, having added to furnace prices \$2.27 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.44 from Virginia:

East. Pa. No. 2X fdy., sil. 2.75 to 3.25....	\$28.77
East. Pa. No. 2X fdy., sil. 2.25 to 2.75....	27.77
East. Pa. No. 2 fdy., sil. 1.75 to 2.25.....	27.27
Buffalo, sil. 1.75 to 2.25.....	29.91
No. 2X Virginia, sil. 2.25 to 2.75.....	32.94
No. 2 Virginia, sil. 1.75 to 2.25.....	32.44

**Coke.**—Recent quotations on coke are being maintained. Standard foundry coke for prompt shipment ranges from \$5.75 to \$6.75 per ton, depending upon the brand, with contracts at \$7 and \$7.25 per ton. Standard furnace for prompt shipment is from \$4.75 to \$5.50 per ton, with some producers quoting \$6 per ton on contracts, but exhibiting no inclination to press for business at this price. By-product coke is unchanged at \$11.34 to \$11.41, Newark and Jersey City points.

**Ferrolloys.**—The ferromanganese and spiegeleisen markets are duller than in many weeks. There seems to be an entire absence of demand for ferromanganese and only a few inquiries for small lots of spiegeleisen. Practically no sales are recorded, even in small or carload lots. New business in 50 per cent ferrosilicon is reported as confined to small and carload lots for which \$84 to \$85, delivered, is the established price. Specifications on contract are stated to be good, but not as insistent as earlier this year. There is no change in the ferrochromium market, demand for which is lighter partly because of less demand from automobile makers for alloy steel.

**Cast-Iron Pipe.**—No evidence of a decline in activity among makers of pressure pipe is reported. Prices are holding firm and deliveries are still extended well up to October, labor scarcity being the only deterrent to full operation. Bids were opened July 24 on about 1400 lengths of 36-in. pressure pipe by the Department of Water Supply, Gas and Electricity, City of New York, the pipe to be furnished through a contractor. The award of 20,500 tons of cast-iron water pipe made by Porto Rico, P. I., a number of months ago, has been under litigation in the courts and either a new call for bids may be issued or a change in the award may be made. We quote per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$62.30; 4-in. and 5-in., \$67.30; 3-in., \$77.30, with \$5 additional for Class A and gas pipe. Makers of soil pipe report a slight increase in activity, although prices are still somewhat weak. Despite the curtailment in operations said to have been made by Southern foundries on soil pipe, Northern makers are reported still running full. We

quote discounts of both Southern and Northern makers, f.o.b. New York, in carload lots, as follows: 6-in. standard, 28 to 30% per cent off list; heavy, 38 to 40% per cent off list.

**Finished Iron and Steel.**—Buying, if anything, has improved. Seldom are the lots large enough to test prices but a number of instances in steel bars and in sheets have appeared in which the lots were attractive but the buyer was unable to break the general price levels. It remains that the weakness in the pig iron market has had a deterrent effect on forward buying in steel, but order books are generally still well enough filled to give the situation considerable strength. Fabricated steel buying goes on apace but not much is promised in the railroad equipment field. There are hardly more than 2500 freight cars now pending and not a great amount of underframes or other steel car parts. The only irregularity noted in plates appears to cover some bidding on a Buffalo basis. A need for tonnage is shown by some sheet mills and some low prices were made on locomotive driving axles.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.74c. to 2.84c.; plates and structural shapes, 2.84c.; bar iron, 2.74c.

**Warehouse Business.**—The past ten days most warehouses report as better from the standpoint of volume of orders than the previous part of the current month. Although orders were numerous, they were generally for small quantities of material. In some lines there is activity between jobbers in small purchases of certain sizes to keep stocks complete. The market on black and galvanized sheets continues weak in spots and is quotable at from 4.65c. to 5c. per lb. base for black sheets and 5.65c. to 6c. per lb. for galvanized. The wrought iron and steel pipe market is unchanged, a small amount of shading still being reported. Swedish charcoal and Lancashire iron bars are still on a basis of 7.50c. per lb. Importers here consider that despite the expected settlement of the labor situation in Sweden the price will probably be slightly higher because of the heavy demand for Swedish iron from European and other foreign consumers. Brass and copper warehouses report no change in prices. We quote prices on page 254.

**Old Material.**—The downward movement in practically all grades of scrap continues uninterruptedly. Heavy melting steel is on a still lower basis this week at \$12 to \$12.50 per ton, buying price New York, with railroad quality \$12.50 to \$13 per ton. No. 1 yard steel is today about \$16 per ton, eastern Pennsylvania delivery, with shipments to western Pennsylvania consumers at \$17.50 to \$18 per ton. Borings and turnings are quotable at \$9.50 to \$10 per ton and the buying price on machine-shop turnings is not to exceed \$10 to \$10.50 per ton. Some turnings are going forward to Phoenixville, Pa., and shipments of borings and turnings to Bethlehem, Pa., continue. As high as \$14.75 per ton, delivered to Lebanon, Pa., is being offered on specification pipe. For stove plate dealers are offering \$16 to \$16.50 delivered to New Jersey foundries and \$16.75 per ton delivered to Harrisburg, Pa. A fair estimate of the market on stove plate is \$12.50 to \$13 per ton, buying price New York.

Buying prices per gross ton, New York, follow:

Heavy melting steel, yard.....	\$12.00 to \$12.50
Steel rails, short lengths, or equivalent .....	12.50 to 13.00
Rails for rolling .....	16.00 to 18.00
Relaying rails, nominal .....	25.00 to 26.00
Steel car axles .....	20.00 to 21.00
Iron car axles .....	25.00 to 26.00
No. 1 railroad wrought.....	16.00 to 16.50
Wrought iron track .....	15.50 to 16.00
Forge fire .....	9.50 to 10.00
No. 1 yard wrought, long.....	15.00 to 15.50
Cast borings (clean).....	10.50 to 11.00
Machine-shop turnings .....	10.00 to 10.50
Mixed borings and turnings.....	9.50 to 10.00
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	10.00 to 11.00
Stove plate .....	12.50 to 13.00
Locomotive grate bars.....	12.50 to 13.50
Malleable cast (railroad).....	18.00 to 19.00
Cast-iron car wheels .....	17.00 to 18.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast.....	\$20.50 to \$21.00
No. 1 heavy cast (columns, building materials, etc.) cupola size .....	19.50 to 20.00
No. 1 heavy cast, not cupola size .....	17.50 to 18.00
No. 2 cast (radiators, cast boilers, etc.) .....	16.00 to 17.00



## Boston

### Pig Iron Buying Improves and Market Is on a Steadier Foundation

BOSTON, July 24.—Improvement in pig iron buying in this territory is noted, but the market can hardly be called active. Individual new inquiries are for not more than 600 tons, usually 100 tons and occasionally 500 tons. The bulk of business booked the past week was solicited by brokers. A Connecticut foundry is reported to have bought 500 to 1000 tons, and a Springfield, Mass., melter approximately 1100 tons No. 2X and No. 1X, through other than local agencies. Based on actual sales, eastern Pennsylvania appears to be on a \$26 furnace base, with 50c. differentials, although some furnace interests hold to \$27.50 base. Buffalo No. 2X early in the week was offered at \$25, and No. 1X at \$25.50, but recent sales have been at 50c. a ton more. Firm offers of \$24.75 and \$24.50 for No. 2 plain and No. 2X have again been rejected by furnaces. Virginia furnaces are more anxious for nearby business and have shaded \$27 furnace base 50c. in some instances. The Alabama iron situation remains as heretofore. The outstanding price feature is a drop in Lake charcoal iron from \$33.50 to \$29 furnace base. Little iron sold the past week for fourth quarter, most furnaces not being anxious for extended datings. Some of it will run over from third to fourth quarter, however. The Springfield foundry was offered northern No. 2X at \$29.50 delivered and No. 1X at \$30, which is better than eastern Pennsylvania and Buffalo furnaces can do. The pig iron market generally appears to be on a steadier foundation than early in the week.

We quote delivered prices on the basis of the latest reported sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia, and \$9.60 from Alabama.

East. Penn., sil. 2.25 to 2.75.....	\$30.15 to \$31.65
East. Penn., sil. 1.75 to 2.25.....	29.65 to 31.15
Buffalo, sil. 2.25 to 2.75.....	29.91 to 31.41
Buffalo, sil. 1.75 to 2.25.....	29.91 to 30.91
Virginia, sil. 2.25 to 2.75.....	32.95 to 33.42
Virginia, sil. 1.75 to 2.25.....	32.45 to 32.92
Alabama, sil. 2.25 to 2.75.....	35.10 to 37.10
Alabama sil. 1.75 to 2.25.....	34.60 to 36.60

**Cast Iron Pipe.**—The Warren Foundry & Pipe Co. has been awarded about 500 tons of 16-in. pipe for the new Turners Falls, Mass., supply line. This is the only important business closed in the New England territory in several weeks. Various municipalities and gas companies are putting out feelers for pipe to be delivered in 1924. Pipe makers are still three to four months behind on deliveries. Cast iron pipe, in carlots, f.o.b. common Boston rate points, is as follows: 4-in., \$72.10 a ton; 6-in. to 14-in., inclusive, \$67.10; 16-in. and larger, \$65.10. The differential on class A and gas pipe is \$5 a ton.

**Warehouse Business.**—The movement of iron and steel out of local warehouses is increasing. Stocks of rounds, especially ½-in., and some sizes of flats are broken. Most warehouses have put into effect larger extras. Lower prices on certain bolts are indicated within the near future. Galvanized staples have advanced 20c. a keg, and sheet lead has declined ¼c. to 13½c. per lb. base. Boston warehouse prices on iron and steel follow:

Soft steel bars, \$3.61½ a 100 lb. base; flats, \$4.40; regular concrete bars, \$3.76½; deformed bars, stock lengths, \$3.76½ to \$3.89; structural steel, \$3.71½; tire steel, \$4.80 to \$5.15; open-hearth spring steel, \$8 to \$10; crucible spring steel, \$12; regular steel bands, \$4.80; bands over 6 in. wide, \$5.05 to \$5.30; hoop steel, \$5.80 to \$6.30; cold rolled steel, \$4.75 to \$5.25; refined iron, \$3.61½; best refined, \$4.75; Wayne iron, \$5.50; Norway iron, \$6.60 to \$7.10.

**Coke.**—Specifications against foundry coke contracts continue fairly liberal, which indicates an increasing New England melt of iron inasmuch as most foundries have limited storage facilities. A few melters have cut down August specifications, due to needed repairs and vacations. The New England Coal & Coke Co. and the Providence Gas Co. are still quoting \$13.50, delivered New England, on by-product foundry fuel. Both companies are well sold ahead on domestic fuel, on which a small operating profit is shown. They are just about breaking even on foundry coke, which makes the

question of still lower prices next month problematical. Connellsville by-product foundry coke is \$11.55 to \$12.55 delivered New England, but melters show little interest in such fuel.

**Old Material.**—New England foundries are showing slightly more interest in No. 1 machinery cast, for which \$22.50 to \$23 delivered is paid. Some stove plate was sold the past week, delivery by truck. Blast furnaces are in the market for moderate tonnages of borings and turnings, but little material is coming out at prices offered by dealers. The market for chemical borings is flat, the largest consumer not only being out of the market, but holding up shipments from New England. So far as can be ascertained, there are no orders in this market for pipe, but dealers are buying most other materials in limited tonnages, usually for stocking purposes. Freer offerings of forged scrap and bundled skeleton have forced the market off about \$1 a ton. Heavy melting steel and wrought prices are weak.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast.....	\$22.50 to \$23.00
No. 2 machinery cast.....	20.50 to 21.00
Stove plate .....	11.00 to 12.00
Railroad malleable .....	24.00 to 24.50
Street car axles.....	21.00 to 21.50

The following prices are offered per gross ton lots f.o.b. Boston common rate shipping points:

No. 1 heavy melting steel.....	\$12.00 to \$12.50
No. 1 rail wrought.....	12.50 to 13.00
No. 1 yard wrought.....	11.50 to 12.00
Wrought pipe (1-in. in diam., over 2 ft. long) .....	8.50 to 9.00
Machine shop turnings.....	9.00 to 9.50
Cast iron borings, rolling mill.....	11.00 to 11.50
Cast iron borings, chemical.....	12.00 to 12.50
Blast furnace borings and turnings .....	9.00 to 9.50
Forged scrap and bundled skeleton .....	9.00 to 9.50
Shafting .....	18.00 to 18.50
Street car axles .....	18.00 to 18.50
Rails for rerolling .....	13.00 to 13.50

## Birmingham

### Buying of Pig Iron by Cast Pipe Makers Expected to Test the Market

BIRMINGHAM, ALA., July 24.—One of the Birmingham makers holding for \$27 sold a car a week for three successive weeks. That indicates the business done at that base. Last Saturday a carload was booked at \$25, with the maker holding at that base. Early revamping of the base is now expected, makers finally sensing the inevitable. The new base is expected to arrive through fourth quarter business placed with large pipe makers at such price as the Birmingham makers may be able to secure. The Alabama iron make is not curtailed. The Tennessee company operates two furnaces on foundry and eight on basic, the Sloss-Sheffield Steel & Iron Co. continuing its seven-stack merchant iron production and the other merchant producers maintaining June production. Humidity causes accumulation of unbooked iron of low silicon content. Charcoal iron is well cared for at \$34, with less than 1000 tons on hand. There have been a few hold-up orders. Birmingham makers are informed of resale iron at \$24.50 in Western markets. General melt in the South is close to the high point, although falling off in respect to soil pipe. Few melters of any kind are in market for new iron. Yard holdings are probably increasing on account of the make of low grade and unbooked metal.

We quote per gross ton f.o.b. Birmingham district furnaces as follows:

Foundry, silicon 1.75 to 2.25.....	\$25.00
Basic .....	24.00
Charcoal, warm blast .....	34.00

**Cast-Iron Pipe.**—The United States Cast Iron Pipe & Foundry Co. has booked 1000 tons of 24-in. for Memphis and the American Cast Iron Pipe Co. has booked 2446 tons for Los Angeles and 490 for Sidney, Ohio. The pressure pipe base remains at \$49. Soil pipe is slow at \$65. A cargo of over 5000 tons of pipe and steel products left Mobile last week for Pacific Coast points. Total pipe business with the Pacific Coast for first half of the year is estimated at 100,000 tons.

**Finishing Mills.**—Tennessee company mills continue double turn with aim at capacity production, the rail mill being at the rate of 35,000 tons a month and car plants turning out 25 finished steel cars per diem. The new merchant bar mill is gradually working toward its monthly capacity of 10,000 tons. Structural steel works have all they can handle and one large concern has turned down business. All are on full turn. The Conners Steel Co. has resumed in one mill following repairs caused by fire. Demand for cotton ties is greater than last year.

**Coal and Coke.**—Demerara has taken 1000 tons of Alabama coal via Mobile and other cargoes for Windward Islands destinations have been booked. Barcelona and Valencia, Spain, each took 1200 tons of sulphate of ammonia from the Tennessee company's by-product plant via Mobile last week. With suspension of the autonomy of the Alabama district by the International Miners' Union, Alabama may be considered approximately 100 per cent open shop in its coal mines.

**Old Material.**—The scrap market is without feature and the new and lower prices are maintained. Buying during the past week was better, but little was done outside of No. 1 cast.

We quote per gross ton f.o.b. Birmingham district yards, nominal prices, as follows:

Old steel rails .....	\$16.00 to \$18.00
No. 1 steel .....	14.00 to 16.00
No. 1 cast .....	20.00 to 21.00
Tram-car wheels .....	20.00 to 21.00
Car wheels .....	19.00 to 20.00
Stove plate .....	15.00 to 16.00
Machine shop turnings .....	10.00 to 12.00
Cast iron borings .....	10.00 to 12.00

## Buffalo

### Low Pig Iron Prices Fail to Develop a Buying Movement

**BUFFALO, July 24**—Lower prices have not served to bring out any worth while buying in any grade of pig iron. Rumors of lower than \$25 base are in active circulation, but all sellers insist \$25 is the lowest that has been done. Under date of July 21, one producer advanced to \$26, base, and so announced to its trade. Buying during the week covered actual needs only and there is nothing to indicate any kind of a buying movement. No stacks have been blown out, but there is no question that there will be curtailment about Aug. 1. The 2400 tons of high silicon iron for a railroad equipment maker, shipment to Watertown, N. Y., has been closed, but not by Buffalo seller. One producer quoted \$26.50 (\$25 base) but the quotation was not accepted. The Rochester furnace has an advantage of 89c in freight rate on shipment to this point and in general a better freight rate on all business east of Buffalo. Lake Superior charcoal iron has been reduced \$4.50 a ton.

We quote f.o.b. per gross ton Buffalo as follows:

No. 1 foundry, 2.75 to 3.25 sil. ....	\$26.00
No. 2X foundry, 2.25 to 2.75 sil. ....	25.50
No. 2 plain, 1.75 to 2.25 sil. ....	25.00
Basic .....	26.00
Malleable .....	26.00
Lake Superior charcoal .....	32.28

**Finished Iron and Steel.**—Inquiry and demand does not show any falling off and prices remain at the same level. Bars are quoted at 2.40c. and plates and shapes at 2.50c. Galvanized sheets are firm at 5c. and the price of 3.85c. on black sheets is general. The shading of black sheet prices on Canadian business still goes on and 3.75c. and even lower is known to have been made on several tonnages. Structural enterprises are pretty well concluded for this year except on small jobs.

We quote warehouse prices, Buffalo, as follows:

Structural shapes, 3.65c.; plates, 3.65c.; soft steel bars, 3.55c.; hoops, 4.65c.; bands, 4.35c.; blue annealed sheets, No. 10 gage, 4.45c.; galvanized steel sheets, No. 28 gage, 6.35c.; black sheets, No. 28 gage, 5.25c.; cold rolled round shafting, 4.70c.

**Old Material.**—Mills are buying heavy melting steel but only in such measure as they consider unusual bargains. Both dealers' and consumers' stocks are near

the exhaustion point, and some buying must develop this month. While prices are nominal, there is a further weakening and all commodities have been readjusted.

We quote f.o.b. gross ton Buffalo as follows:

Heavy melting steel .....	\$17.00 to \$18.00
Low phos., 0.04 and under .....	23.50 to 24.50
No. 1 railroad wrought .....	15.00 to 16.00
Car wheels .....	16.50 to 17.00
Machine shop turnings .....	11.00 to 12.00
Cast iron borings .....	15.00 to 16.00
No. 1 busheling .....	15.50 to 16.00
Stove plate .....	17.00 to 17.50
Grate bars .....	17.00 to 17.50
Bundled sheet stampings .....	10.00 to 11.00
No. 1 machinery cast .....	19.50 to 20.50
Hydraulic compressed .....	15.00 to 16.00
Railroad malleable .....	20.00 to 21.00

## St. Louis

### Sales and Inquiries for Pig Iron Are Few and for Small Tonnages

**ST. LOUIS, July 24.**—Sales of pig iron during the last week were from a carload up to 100 tons, and only a few of these were made. Inquiries ranged from a carload up to 200 tons, and these, too, were few in number. Melters still are buying only for immediate needs. Two of the largest stove foundries in St. Louis have closed for the summer repair work, and the third is running only part time. Some of the Quincy (Ill.) plants are closed, although the Belleville stove industries are operating. Foundries operating on railroad orders are extremely busy, but in other lines there is a slowing down of orders. Melters are cautious about their future requirements of pig iron. On the other hand, the makers are willing to mark time. A sale is reported of Northern iron at \$27.50, Chicago, 100 tons being involved. Southern iron is quoted at \$25. It is difficult to say just what the market is on either make, as there is dickering for each individual order as the inquiry develops. The St. Louis Coke & Iron Co. is quoting \$28 to \$29 at its Granite City furnace.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.16 freight from Chicago, \$3.28 from Birmingham (rail and water), \$5.17 from Birmingham, all rail, and 81 cents average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25 .....	\$30.16
Northern malleable, sil. 1.75 to 2.25 .....	30.16
Basic .....	30.16
Southern fdy., sil. 1.75 to 2.25 .....	30.17

**Finished Iron and Steel.**—Conditions generally are quiet. The only railroad inquiries were for quantities less than carloads. Jobbers are not buying anything, seemingly waiting for price reductions, which the mills intimate may never come. Fabricators of structural steel are buying nothing, although they are insisting on shipments against contracts. Orders for reinforcing bars for the Coronado Hotel, St. Louis, 350 tons, and the Washington Hotel, Shreveport, La., 300 tons, went to the Laclede Steel Co. The Kansas City Bolt & Nut Co. got the order for 750 tons of reinforcing bars for the Memorial building in Kansas City.

For stock out of warehouse we quote: Soft steel bars, 3.35c. per lb.; iron bars, 3.35c.; structural shapes, 3.45c.; tank plates, 3.45c.; No. 10 blue annealed sheets, 4.45c.; No. 28 black sheets cold rolled, one pass, 5.20c.; cold drawn rounds, shafting and screw stock, 4.45c.; structural rivets, 4.15c.; boiler rivets, 4.25c.; tank rivets,  $\frac{3}{4}$  in. and smaller, 50-5 per cent off list; machine bolts, 45-5 per cent; carriage bolts, 40-5 per cent; lag screws, 50-5 per cent; hot pressed nuts, square or hexagon blank, \$2.50; and tapped, \$2.50 off list.

**Coke.**—A fair demand is reported for domestic coke for shipment beginning next month to dealers, more of whom are said to be turning to coke in view of the uncertainties of the anthracite situation. Foundry coke is in fairly good demand. Sales of Connellsville coke are reported at prices ranging from \$5.75 to \$7 at the ovens.

**Old Material.**—The only buying of old material at present is by dealers. Some of this is to cover contracts, while there has been some buying of material to lay up in anticipation of the demand dealers feel will assert itself about Aug. 15. In the meantime consumers are out of the market, with the exception of buying



a few specialties. On these specialties there has been a stiffening of prices, other items remaining about the same. Railroad lists include: St. Louis & San Francisco, 1500 tons; Belt Railroad of Chicago, 500 tons; Atchison, Topeka & Santa Fe, 4000 tons; Missouri-Kansas-Texas, 2000 tons; Wabash, 337 tons; Canadian National Railway (Battle Creek, Mich.), 2000 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails .....	\$19.00 to \$19.50
Rails for rolling .....	17.50 to 18.00
Steel rails less than 3 ft. ....	18.50 to 19.00
Relaying rails, 60 lb. and under ..	26.00 to 27.00
Relaying rails, 70 lb. and over ..	33.50 to 34.50
Cast iron car wheels .....	18.00 to 18.50
Heavy melting steel .....	16.50 to 17.00
Heavy shoveling steel .....	16.50 to 17.00
Frogs, switches and guards cut apart .....	16.50 to 17.00
Per Net Ton	
Heavy axles and tire turnings ..	12.75 to 13.25
Steel angle bars .....	15.25 to 15.75
Iron car axles .....	26.00 to 27.00
Steel car axles .....	20.00 to 21.00
Wrought iron bars and transoms ..	21.00 to 22.00
No. 1 railroad wrought .....	14.00 to 14.50
No. 2 railroad wrought .....	15.50 to 16.00
Railroad springs .....	19.00 to 19.50
Cast iron borings .....	12.50 to 13.00
No. 1 busheling .....	14.75 to 15.25
No. 1 railroad cast .....	17.50 to 18.00
No. 1 machinery cast .....	18.00 to 18.50
Railroad malleable .....	17.00 to 17.50
Machine shop turnings .....	11.50 to 12.00
Champion bundled sheets .....	9.00 to 9.50

## Cincinnati

### Sale of Malleable at \$2 Below Recent Price— Silvery Prices Reduced

CINCINNATI, July 24.—Two sales of outstanding importance were reported last week. The Link-Belt Co. bought 3000 tons of malleable iron for third quarter shipment at \$26.77, delivered Indianapolis, but the name of the furnace from which the iron will be shipped was not disclosed. This price represented a cut of approximately \$2 per ton under the previous low price of the market, and it is said could not be duplicated today, as the order was an exceedingly attractive one. The S. Wayne-Robinson Co., Richmond, Ind., bought 1500 tons of foundry iron for fourth quarter, the silicons ranging from 1.75 to 3.25, and it is reported that this iron was divided equally between the southern Ohio furnaces and a lake furnace, at prices ranging from \$25.75 to \$26.25, furnace. Several other sales of 100 to 400 tons of Northern iron were reported at \$26, Ironton basis. The only sale of Southern iron of importance was of 500 tons to a nearby melter at \$25, Birmingham, for silicons 2.25 to 2.75, or \$24.50 base. Silicons are being given away by some Southern furnaces, which have not, however, gone below \$25 for any grade. Jackson county silvery furnaces have cut the schedule \$5 per ton, 8 per cent now being quoted at \$34.50, furnace. Some business was done on the decline, the most notable sale being for 500 tons. A decline in pig iron production in the southern Ohio district will be brought about by the blowing out of Hamilton furnace next Sunday. Star silvery furnace went out on Monday. One of the two Marting furnaces in blast will blow out within the next 10 days, and about Aug. 1 Hanging Rock and Belfont furnaces will either bank or blow out. This will leave only one active producer of foundry in the Ironton district. The Wellston furnace will go on low phosphorus this week, and Globe and Jisco furnaces, it is expected, will continue to operate on silveries and spiegeleisen for some time. Two inquiries of 1000 tons each are current for malleable iron.

Based on freight rates of \$4.05 from Birmingham and \$2.27 from Ironton, we quote f.o.b. Cincinnati:

Southern coke, sil. 1.75 to 2.25 (base) ..	\$29.05
Southern coke, sil. 2.25 to 2.75 (No. 2 soft) ..	29.55
Ohio silvery, 8 per cent ..	36.77
Southern Ohio coke, sil. 1.75 to 2.25 (No. 2) ..	28.27
Basic Northern ..	27.27
Malleable ..	28.27

**Finished Materials.**—While orders are not heavy, there is a much better demand for finished products

for fill-in purposes, and some of the larger consumers, particularly of sheets, are showing some interest in fourth quarter tonnages, though not actually inquiring. Most of the orders are being placed for one to two carloads, and purchasers usually try to exact delivery promises of from two to three weeks, but mills generally speaking are unable to make better deliveries than from six to eight weeks. On the heavier products, such as shapes and plates, eight weeks is the usual run. Steel bars are in little demand, most of the orders being for reinforcing bars in small tonnages. Forging billets, car wheels, axles, and bolts and nuts are in fair demand, particularly bolts and nuts, some good-sized orders for which were placed. There is also a slightly better demand for wire products, but the attention of the consumer is more generally given to urging the mills to make shipment on contracts. There is little new activity in the structural field. A school building at Indianapolis will shortly be up for bids, the steel work requiring about 300 tons. An office building for the Continental National Bank, Indianapolis, general contract for which has been awarded, will also be up for bids shortly, it not having been decided whether the building will be of steel or reinforced concrete. The Shrine Temple at Louisville, scheduled for bids July 16, has been postponed till a later date. The Neil House at Columbus, the steel work for which was reported awarded last February, will be redesigned for reinforced concrete construction and new bids taken in the near future. This was a 5000-ton project. The principal letting last week was of 1300 tons of steel for a viaduct for the Peoria & Eastern Illinois Railroad, on which the Fort Pitt Bridge Co. was low bidder. The Big Four Railroad has awarded 150 tons of bridge work to the Mount Vernon Bridge Co.

**Warehouse Business.**—Local jobbers are enjoying a fair business, particularly in reinforcing bars and small angles. Nails, too, are moving well. Prices remain as last quoted, with no changes anticipated.

Cincinnati jobbers quote: Iron and steel bars, 3.50c.; reinforcing bars, 3.60c.; hoops, 4.55c.; bands, 4.25c.; shapes, 3.60c.; plates, 3.60c.; cold-rolled rounds, 4.50c.; cold-rolled flats, squares and hexagons, 5c.; No. 10 blue annealed sheets, 4.25c.; No. 28 black sheets, 5.35c.; No. 28 galvanized sheets, 6.35c.; No. 9 annealed wire, \$3.60 per 100 lb.; common wire nails, \$3.60 per keg base.

**Cast Iron Pipe.**—The City of Huntington, Ind., will receive bids until July 30 for the construction of a sewage disposal plant, including about 16,000 ft. of 12- to 42-in. pipe, at an estimated cost of \$250,000.

**Old Material.**—While there is little current demand, the opinion is becoming more pronounced that the bottom of the scrap market has about been reached, and dealers are commencing to purchase scrap to lay on yards. More bidders appeared at the Southern Railroad opening at Washington, and prices offered were slightly higher than last month. The same is true of the Norfolk & Western list. Prices generally show little change, but cast scrap is weaker and larger offerings have knocked the price off \$1. One steel mill in the district is taking small tonnages of heavy melting at its own prices, figuring about \$18, delivered.

We quote dealers' buying prices, f.o.b. cars Cincinnati:

Per Gross Ton	
Bundled sheets .....	\$12.50 to \$13.00
Iron rails .....	15.00 to 15.50
Relaying rails, 50 lb. and up ..	28.00 to 28.50
Rails for rolling .....	16.50 to 17.00
Heavy melting steel .....	15.00 to 15.50
Steel rails for melting .....	14.50 to 15.00
Car wheels .....	15.50 to 16.00
Per Net Ton	
No. 1 railroad wrought .....	12.50 to 13.00
Cast borings .....	10.50 to 11.00
Steel turnings .....	9.00 to 9.50
Railroad cast .....	16.50 to 17.00
No. 1 machinery cast .....	19.00 to 19.50
Burnt scrap .....	12.00 to 12.50
Iron axles .....	22.50 to 23.00
Locomotive tires (smooth inside) ..	13.50 to 14.00
Pipes and flues .....	9.50 to 10.00

**Coke.**—The movement of coke is rather slow, although there is some evidence of a better feeling on the part of both producers and melters. The demand still runs mostly to carloads, with an occasional contract covering the remainder of the year being negotiated. Prices generally show no change, although some of the operators who had been holding up their prices have been forced to meet the competition of

the lower priced sellers. Plans are now being made to curtail production, particularly of 48-hr. fuels, in all districts, as a result of the number of merchant furnaces going out or contemplating going out of blast.

## Cleveland

### Pig Iron Market Still Weak—Consumption of Ore Decreases

CLEVELAND, July 24.—Consumption of Lake Superior ore, which reached the peak of 6,118,540 gross tons during May, fell off 302,401 tons to 5,816,139 tons during June, according to the monthly report of the Lake Superior Iron Ore Association. However, a large part of this decrease can be accounted for by the shorter month. Both central districts and lake front furnaces consumed less ore in June than in May, but the consumption of Lake Superior ore by Eastern furnaces increased 26,318 tons during the month. The amount consumed in June, 1922, was 3,440,583 tons. On July 1 there were 22,800,253 tons of ore on hand at furnaces and Lake Erie docks, as compared with 18,864,791 tons on June 1, and with 25,447,079 tons on July 1, last year. Stocks at furnaces July 1 were 18,288,462 tons, as compared with 14,786,481 tons on June 1.

**Pig Iron.**—The market has become somewhat more active, but buying during the week was largely confined to foundry and malleable iron for early requirements. However, some inquiry is now coming out for iron for the remainder of the year, although not much of a buying movement is looked for at present, in view of the fact that many consumers seem to doubt whether prices have reached bottom. The market is still weak, although there seems to be a disposition on the part of a number of producers not to go below \$26 on foundry and malleable iron. However, in the Valley district much of the business taken during the week was on the basis of \$25 and there is evidence that that price is being shaded in Buffalo. Locally the market has declined 25c. to meet the competition of \$25 Valley iron and several small lot local sales were made by one Cleveland producer at \$26.75, delivered. Another local producer is still holding to \$27. The Westinghouse Electric & Mfg. Co. has purchased 1050 tons of two grades of foundry iron running to 2.25 to 3.35 in silicon for its Cleveland plant for August shipment. Of this, 600 tons was purchased from a Cleveland furnace and the remainder from a Valley producer. The recent purchase of 3000 tons of malleable iron by the Link-Belt Co. for its Indianapolis plant is understood to have been made at \$26.77 delivered. Among new inquiries is one for 3000 tons of malleable for the fourth quarter and two 500-ton lots for earlier delivery. The American Steel Foundries is inquiring for 1000 tons of basic for August shipment and a Canton consumer is in the market for 250 tons of malleable iron for early shipment. Low phosphorus iron is still weak and no longer quotable above \$33. We note the sale of a 300-ton lot of high silicon low phosphorus by a Valley furnace to a northern Ohio consumer at \$34, this iron carrying a \$1 a ton differential. A reduction to \$34.50 for 8 per cent has been made on Ohio silvery iron schedule. However, the new price is only about \$2 a ton lower than some of the recent quotations.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6 rate from Birmingham:

Basic, Valley furnace .....	\$25.00
Northern No. 2 fdy., sil. 1.75 to 2.25 .....	\$26.75 to 27.25
Southern fdy., sil. 1.75 to 2.25 .....	31.00
Malleable .....	26.75 to 27.25
Ohio silvery, 8 per cent .....	37.52
Standard low phos., Valley furnace .....	33.00

**Bolts, Nuts and Rivets.**—Bolt and nut specifications are fair for this time of the year, manufacturers reporting a good number of small orders. The new bar card extras has resulted in a price increase for some of the raw material, particularly for stock for small

nuts. Consequently makers soon will be inclined to shade regular prices. Rivet prices have further declined about \$3 a ton and are weak. The market now is established at 3c. to 3.10c. for structural and 3.10c. to 3.20c. for boiler rivets, and some makers have revised contracts to these prices. Further concessions of \$2 a ton to 2.90c. for structural and 3c. for boiler rivets for prompt shipment are reported. Small rivets are also lower, now being quoted at 65 and 10 per cent off list.

**Coke.**—The demand for foundry coke is light and prices show little change. The supply is plentiful. We quote standard Connellsville coke at \$5 to \$6.50 for prompt shipment and \$6.50 to \$7 for contracts.

**Sheets.**—Demand for sheets continues light. Most mills, however, are comfortably filled with orders and those making automobile body sheets have their third quarter production under contract. Prices are holding fairly firm. While black sheets are still being shaded \$2 a ton to 3.75c. per lb., this concession is not general. A price of 4.75c. has appeared on galvanized sheets, but this seems to have been on surplus mill stocks.

**Reinforcing Bars.**—The Bourne-Fuller Co. has taken 575 tons for the Jamestown Hotel, Jamestown, N. Y. The only new inquiry of any size is for 200 tons for a hotel at Harrisburg, Pa., the general contract for which has been placed with the Hunkin-Conkey Construction Co., Cleveland. Rail steel reinforcing bars are unchanged at 2.30c. to 2.35c.

**Warehouse Business.**—Jobbers are doing a good volume of business in sheets and their sales in other lines are fair. Some shading is reported on galvanized sheets. There are reports of \$3 a ton concession in warehouse prices on steel bars, plates and structural, but it is claimed that this shading is only on material for out-of-town shipment to points that come in competition with the lower regular prices of Pittsburgh warehouses.

**Semi-Finished Steel.**—Some new inquiry has come out for billets and slabs, but no sales are reported. Mills are holding firmly to \$42.50 for sheet bars, billets and slabs. A carlot sale of forging billets is reported at \$50, Eastern mill.

**Finished Material.**—Mills are getting a fair volume of specifications, but new business is light and there is little inquiry for round lots of steel for specific work. The market is firm and efforts of buyers to develop lower than the regular quotations on steel bars, plates and structural material have proved unsuccessful. The probability of the establishment of the 8-hr. day in the steel industry in the near future is evidently having some effect in stabilizing the market at present levels, as it is pointed out that should mills make concessions now, it would be necessary for them to advance their prices again when operating costs are increased by the adoption of a shorter work day. Another feature of the market in practically all finished lines is that cancellations and suspensions are not more than normal for this season of the year. Encouraging reports continue to come from the automobile industry in Detroit, where the plants of the leading car builders continue in good operation. Automobile companies look for a good demand for cars during the remainder of the year, but are following a cautious policy in buying steel. Cleveland automobile plants are now operating at 50 per cent of capacity. Manufacturers of automobile parts are operating at 75 per cent or more of full capacity. The recent inquiries for several lake boats have not resulted in any orders. The Pere Marquette Railroad is considering the building of 500 refrigerator cars in its own shops. Little inquiry is coming out in the structural field. The demand for nails and wire is holding up well and deliveries show little improvement. The leading interest has reduced railroad and boat spikes \$5 a ton to 3.50c. per lb., which for some time has been the price quoted by independent mills.

Jobbers quote steel bars, 3.36c.; plates and structural shapes, 3.46c.; No. 9 galvanized wire, 3.70c.; No. 9 annealed wire, 3.25c.; No. 28 black sheets, 4.65c.; No. 28 galvanized sheets, 5.80c.; No. 10 blue annealed sheets, 3.75c. to 4.06c.; cold rolled rounds, 3.90c.; flats, squares and hexagons, 4.40c.; hoops and bands, 1 in. and wider and 20 gage or heavier, 4.16c.; narrower than 1 in. or lighter than No. 20 gage, 4.60c.



**Old Material.**—Prices have further declined 50c. to \$1 a ton and the market continues weak and inactive. Borings and turnings are about the weakest items on the list. A local mill purchased a small tonnage of heavy melting steel at \$16.50 delivered, and small lot purchases have been made by dealers at \$16, producers yard. Local mills are still holding up shipments. Dealers are buying scrap from producers, which they are compelled to lay down because they can find no market for it. Dealers are offering \$10.75 for turnings delivered at Breckenridge.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel, nominal....	\$16.00
Rails for rolling .....	\$18.00 to 18.50
Rails under 3 ft. ....	17.75 to 18.00
Low phosphorus melting.....	18.50 to 19.00
Cast borings .....	11.50 to 11.75
Machine shop turnings .....	10.50 to 10.75
Mixed borings and turnings.....	11.00 to 11.50
Compressed sheet steel.....	13.00 to 13.50
Railroad wrought .....	12.25 to 12.75
Railroad malleable .....	22.00 to 22.50
Light bundle sheet stampings.....	10.00 to 10.50
Steel axle turnings .....	14.50 to 15.00
No. 1 cast .....	18.50 to 19.50
No. 1 busheling .....	10.00 to 10.50
Drop forge flashings .....	10.00 to 10.50
Railroad grate bars .....	12.00 to 12.50
Stove plate .....	12.00 to 12.50
Pipes and flues .....	9.00 to 9.50

## Philadelphia

### Increased Buying and Inquiry Causes More Cheerful Sentiment

PHILADELPHIA, July 24.—Greater buying, together with increased inquiry and specifications against contracts in a number of finished lines, has given a more cheerful tone to the iron and steel market in this district. The weak spots continue to be manifest in scrap and pig iron, however. Both have softened in price, some of the leading grades of old material have declined 50c. per ton the past week, while eastern Pennsylvania and Virginia grades of foundry iron have fallen \$1 per ton, and basic iron 50c. per ton. Even in pig iron there are some furnace representatives who claim that a great deal more activity is in prospect. They express the opinion that buyers, being without stocks, feel that the bottom has been practically reached, and will soon come into the market and close for their requirements.

The finished lines which show the most activity are plates, shapes, steel bars, wire, pipe, spikes, bolts and nuts. While the improved purchases and specifications in these lines have not been on a widespread or heavy scale, they are accepted as promising a better turn in the market and to insure continued operations at the present good rate. Plate, spike and bolt business has been especially good with some producers, and while the railroads are the leading buyers, the purchasers represent miscellaneous consumers.

The fact that some good-sized sales of foundry iron have been made the past week also is looked to as an encouraging sign, even if they have been limited as to the number of furnaces involved, and have been negotiated at reduced prices.

**Pig Iron.**—Considerably greater business was done in pig iron in this district the past week than the preceding week and, while it was obtained at reduced prices, producers say buyers are showing somewhat more interest generally. Furnace people profess the belief that the price slump has been checked and that this will encourage renewed purchases. One producer has made sales of more than 10,000 tons of eastern Pennsylvania foundry grades which are quoted \$1 per ton under prices one week ago. No. 2 plain now is quoted at \$25.76 to \$27.56, delivered, or a minimum furnace level of \$25. While reports have been heard that small lots have been sold under this quotation, it is not thought that much business, if any, is being offered at the lower price. Virginia grades also have been sold at \$1 per ton less than prices of one week ago in consuming districts near the furnaces, but because of the high freight rate these grades are not

reaching this district. Basic iron has declined 50c. per ton to a minimum of \$25.50, delivered, eastern Pennsylvania. An unverified report was in circulation of a sale of 4,000 tons of copper-free low phosphorus iron to a Philadelphia district consumer at slightly less than \$33, delivered. The Warren Foundry & Pipe Co. bought from 20,000 to 25,000 tons of No. 2 plain and No. 3. Foreign pig iron also has taken a downward turn, declining \$1 per ton on all grades. It is stated that almost no foreign iron now is being sold in this district, but shipments against contracts continue to arrive. Imports to this district the past week totaled 5328 tons, of which 3524 tons came from Belgium and 1804 tons from France. While there was talk recently of blowing out furnaces, none has gone out of blast in this district the past week. The Lavino Furnace Co. has blown in its furnace at Reusens, Va.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76 cents to \$1.64 per gross ton:

East Pa. No. 2 plain, 1.75 to 2.25 sil. ....	\$25.76 to \$27.56
East. Pa. No. 2X, 2.25 to 2.75 sil. ....	26.56 to 27.26
East. Pa. No. 1X.....	27.26 to 28.01
Virginia No. 2 plain, 1.75 to 2.25 sil. ....	31.17 to 31.67
Virginia No. 2X, 2.25 to 2.75 sil. ....	31.67 to 32.67
Basic delivered eastern Pa. ....	26.00 to 26.50
Gray forge .....	27.00 to 27.50
Malleable .....	30.14 to 30.64
Standard low phos. (f.o.b. furnace) .....	30.00 to 35.00
Copper bearing low phos. (f.o.b. furnace) .....	32.00

#### Foreign Pig Iron

All prices f.o.b. cars Philadelphia, duty paid.	
Continental foundry, 1.80 to 2.50 sil. ....	\$25.50
Continental foundry, 2.50 to 3.25 sil. ....	26.50
Low phos. copper free, guar. not over 0.035 per cent phos. ....	33.00
Continental, phos. 1.50; sil. 2 to 3.....	25.50

**Ferroalloys.**—The market for ferroalloys continues to be dull. Except for sales of carlots no new tonnage is moving and inquiries are lacking. Prices are unchanged, ferromanganese being quoted at \$117.50, Atlantic seaboard.

**Semi-Finished Steel.**—No change has developed in the market for semi-finished steel. Re-rolling billets are quoted at \$42.50, Pittsburgh, and forging steel at \$47.50 to \$50, Pittsburgh.

**Plates.**—Makers of plates in this district report considerably increased activity in the market. Both new buying and specifications against contracts have developed in large proportions and sales of from 500 to 1000 tons have been closed at 2.50c., base, Pittsburgh, some producers asking 2.60c. for small lots. The railroads are the most prominent factors and have been specifying rather freely against contracts and are being booked for new requirements. Oil tank business also has improved. One producer reports having booked more plate tonnage in July than in any other month of the present year, and has had to extend delivery for a period ranging from 60 to 90 days, while previously delivery was being made in 30 days. This mill reports that specifications and new business are about equal.

**Structural Steel.**—Moderate activity exists in the market for structural material, especially small shapes, and the price continues to be quoted at 2.50c. base, Pittsburgh. Deliveries are being made in 30 to 45 days, and most mills are booked comfortably, and in addition to receiving specifications against contracts in fair-sized volume, report improved buying. The American Bridge Co. was the lowest bidder for 1900 tons for the Delaware River bridge, Philadelphia to Camden, N. J., being built by the Delaware River Bridge Joint Commission. The award is expected to be made in about one week.

**Bolts, Nuts and Rivets.**—Unusually large purchases and specifications against contracts have been made in this district during the past week for spikes, bolts, nuts and rivets. Specifications for heat-treated track bolts were made against a contract with one large maker involving about 2000 kegs, while several hundred tons of machine bolts, nuts and rivets were also included. The Philadelphia & Reading Railroad purchased 1000 kegs of standard spikes, and is asking for quotations on 200,000 to 300,000 low carbon track bolts and 200,000 to 400,000 heat-treated bolts. The Public

Service Railway Co. of New Jersey closed for 5000 tie rods. Prices remain unchanged for bolts, nuts and rivets. Reports of a weakened market for castellated nuts are declared to be unfounded. Most of the railroad purchases are for third quarter delivery.

**Warehouse Business.**—Demand for steel from warehouse stocks is fair for this time of the year, buying being of a miscellaneous character. Prices are unchanged.

Soft steel bars and small shapes, 3.55c.; iron bars (except bands), 3.55c.; round edge iron, 3.75c.; round edge steel, iron finished,  $1\frac{1}{2}$  x  $\frac{1}{2}$  in., 3.75c.; round edge steel planished, 4.55c.; tank steel plates,  $\frac{1}{4}$  in. and heavier, 3.65c.; tank steel plates,  $\frac{3}{8}$  in., 3.95c.; blue annealed steel sheets, No. 10 gage, 4.25c.; black sheets, No. 28 gage, 5.15c.; galvanized sheets, No. 28 gage, 6.25c.; square twisted and deformed steel bars, 3.65c.; structural shapes, 3.65c.; diamond pattern plates,  $\frac{1}{4}$ -in., 5.40c.;  $\frac{3}{8}$ -in., 5.60c.; spring steel, 5c.; round cold-rolled steel, 4.35c.; square and hexagons, cold-rolled steel, 4.85c.; steel hoops, 1 in. and wider, No. 20 gage and heavier, 4.75c.; narrower than 1 in., all gages, 5.25c.; steel bands, No. 12 gage to  $\frac{1}{4}$ -in., inclusive, 4.35c.; rails, 3.55c.; tool steel, 8.50c.; Norway iron, 7c.

**Ore.**—Iron ore receipts in this district the past week amounted to 44,114 tons, of which 22,920 tons came from French Africa and 21,194 tons from Sweden.

**Iron and Steel Bars.**—Specifications for steel bars have increased and a slightly better buying movement has developed. Steel bars continue to be quoted at 2.40c. base, Pittsburgh. Demand for common iron bars is quiet and the price is unchanged.

**Sheets.**—Mills are comfortably booked on blue annealed and galvanized sheets, and are making deliveries in each grade in six to eight weeks. While producers are not rolling so heavily on black sheets, they also report fair booking in this grade, and are making deliveries in four to six weeks. Railroads and coal companies are the most conspicuous buyers of blue annealed sheets, and also are increasing specifications and inquiries for this class of tonnage. Prices are unchanged, No. 10 blue annealed being quoted at 3c., Pittsburgh; galvanized No. 28 at 5c., Pittsburgh, and black sheets No. 28 at 3.85c., Pittsburgh.

**Old Material.**—Further recession has developed in the market for scrap, heavy melting steel and other leading grades declining 50c. per ton. Sales are even more restricted than they were one week ago, and inquiries are light. The fact that consumers do not have any sizeable stocks on hand leads some dealers to the belief that improvement will develop in the market within a reasonable time. Imports of scrap to this district the past week totaled 3185 tons, of which 3110 tons came from the Dominican Republic and 75 tons from England.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel.....	\$16.00 to \$17.00
Scrap rails .....	16.00 to 17.00
Steel rails for rolling .....	19.00 to 20.00
No. 1 low phos., heavy 0.04 and under .....	21.50 to 22.50
Cast iron car wheels.....	20.00 to 21.00
No. 1 railroad wrought .....	18.00 to 19.00
No. 1 yard wrought .....	17.00 to 18.00
No. 1 forge fire.....	15.00 to 15.50
Bundled sheets (for steel works) .....	14.00 to 14.50
No. 1 busheling.....	16.00 to 17.00
Mixed borings and turnings (for blast furnace use).....	12.50 to 13.50
Machine shop turnings (for steel works use) .....	14.00 to 14.50
Machine shop turnings (for rolling mill use) .....	14.50 to 15.00
Heavy axle turnings (or equivalent) .....	16.00 to 16.50
Cast borings (for steel works and rolling mills).....	15.00 to 15.50
Cast borings (for chemical plants) .....	18.00 to 19.00
No. 1 cast.....	20.00 to 21.00
Heavy breakable cast (for steel plants) .....	18.00 to 18.50
Railroad grate bars .....	17.00 to 18.00
Stove plate (for steel plant use) .....	16.50 to 17.00
Railroad malleable .....	19.00 to 20.00
Wrought iron and soft steel pipes and tubes (new specifications) .....	15.00 to 15.50
Shafting .....	22.00 to 24.00
Steel axles .....	24.00 to 26.00

The week of Oct. 22 has been set aside as management week. The management division of the American Society of Mechanical Engineers, the Taylor Society, the Society of Industrial Engineers and the National Association of Cost Accountants will cooperate in meetings to be held all over the country during that week.

## PREPARING TO ORGANIZE

### Union Circulars Say Strike of 1919 Was Unwise—Another Not Favored

CHICAGO, July 23.—William Hannon, a general organizer for the American Federation of Labor, has arrived in Chicago to take charge of efforts to unionize the steel workers of this district. Commenting on the recent announcement by Judge Gary of the United States Steel Corporation regarding the establishment of the 8-hr. day in the steel industry, Mr. Hannon said: "It is significant that E. H. Gary made this announcement only after our organization plans were announced. We believe he is holding out hope of the shorter day in order, if possible, to shove legislation through Congress repealing the present restriction immigration laws and also he may deceive the men into believing they need not unionize."

The fact is that the letter of the directors of the American Iron and Steel Institute was written June 27, made public by President Harding July 5 and the plans of the federation were announced July 10.

Mr. Hannon stated that efforts to unionize the Wisconsin plants will be directed from the Chicago headquarters. Organizers are also to be sent into Colorado and Alabama. The first weeks, it is stated, will be devoted to a program of education to prepare for mass meetings which will be held in the fall. The federation's plan of educating the workers to the union idea is to consist largely of the distribution of circulars in several languages. Some of the circulars already printed declare that the union leaders do not favor a strike. The 1919 strike is characterized as a mistake and statements are made that the Federation of Labor intends to win without calling the men out.

Mr. Hannon will be assisted at Chicago headquarters by Charles Glover of the blacksmiths organization, E. J. Holley of the iron, steel and tin workers and John Tunney of the mine, mill and smelter workers.

### To Find New Uses of Sheet Steel and Improve Galvanizing Methods

Plans have been perfected for a survey of the country, sponsored by the National Association of Sheet and Tin Plate Manufacturers, having for its object the uncovering of new uses for sheet steel. Incidental, but by no means an unimportant part of the survey, will be an effort to develop better galvanized sheets, in which the American Zinc Institute is co-operating. The investigation, which is preliminary to a country-wide advertising campaign, has been placed in the hands of a Chicago firm which specializes in such work.

Ultimate plans in connection with galvanized sheets call for the elimination as far as practicable of light coated sheets. This is to be accomplished by ascertaining from buyers the purpose to which the material is to be put, and to give to the producer the final word as to the weight of the coating. If, for example, a demand is made for galvanized sheets with  $\frac{1}{2}$ -lb. coating, and the material is to be used for roofing or some other purpose entailing exposure to the elements, the buyer is to be informed that such a coating will not last long and will be advised to purchase sheets of heavier coating, which not only will give service but prevent unfavorable comment on the material. Eventually, it is planned to devise standard coatings for all uses and thus eliminate guesswork in specifications and unfavorable criticism of quality, which in the last analysis is the result of insufficient information as to performances under given conditions.

The properties of the Kilbourne & Jacobs Mfg. Co., Columbus, Ohio, will be sold at auction Sept. 12, unless a mortgage of \$900,000 held by the New York Trust Co. is satisfied before that time. The company will continue in operation until that date under the direction of Paul Norton, special master, appointed by the Federal court to manage the properties.



## BRITISH IRON AND STEEL MARKET

## Pig Iron Market Weak—French Seizures of Fuel Closing Ruhr Plants—India Orders 15,000 Tons Rails from England

(By Cable)

LONDON, ENGLAND, July 24.

The pig iron market is weak and demand is almost stagnant. Furnacemen are considering the question of banking some of their furnaces. No. 3 foundry iron is quoted at 106s. 6d. (\$24.44), f.o.b. Six Scotch furnaces have already been blown out and it is doubtful if they will be relighted after the holidays. The hematite pig iron market is dull and there are easier supplies, with mixed numbers easily obtainable at 103s. 6d. (\$23.75), f.o.b.

The market for foreign ore is quiet, with sellers of Rubio at 22s. 9d. to 23s. (\$5.23 to \$5.29), ex-ship Tees. Mediterranean hematite ore is quoted at 20s., c.i.f.

A slight improvement in demand for finished iron and steel is noted. Germany has bought shipbuilding material and India has placed orders for 15,000 tons of rails. Japan, Australia and South Africa are also in the market.

The continental position is unchanged. Japan has bought moderately small parcels of various products, otherwise the market is generally dull. Semi-finished steel is scarce, with wire rods quoted at £10 10s. (\$48.18) and billets at £7 5s. (\$33.27), both f.o.b.

In France the Nord et d'Est Cie is about to blow in a third furnace. Owing to the intensified confiscation campaign in the Ruhr a fuel crisis is not expected to develop until December.

In Belgium, owing to a shortage of semi-finished steel, ironmasters are requesting permission to purchase part of the Ruhr stocks.

In Germany seizures of works fuel stocks is strangling the industry of the Ruhr. The Bochumer Verein at Bochum, Westphalia, has 20,000 men idle. A large part of the Krupp plant is closed, as well as the Deutscher Maschinenfabrik at Wetter and the Wittener Gusstahlwerk at Witten. The Thyssen works at Hamborn are impeded by military occupation. Locomotives and cars have been confiscated at the Rheinische Metallwaren at Düsseldorf. The French claim that they are allowing plants sufficient coke to keep blast

furnaces running, although dampened down. The Heinrichshuette at Hattingen is blowing in furnaces again. The tin plate market is quiet at minimum prices for August-September delivery, with inquiries reported from Portugal. There is a fair demand for wasters with 28 x 20s. sold at 43s. 9d., f.o.t. Galvanized sheets are firm with improved demand including fair sales to India and other colonies. Black sheets are easier for thick gages, with Japanese specifications sold at £19, f.o.b. (39c. per lb.).

We quote per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.59 per £1, as follows:

Durham coke, delivered	£2 1½s.			\$9.53
Hilbac Rubio ore†	1 4			5.48
Cleveland No. 1 foundry	5 15			26.34
Cleveland No. 3 foundry	5 5			24.10
Cleveland No. 4 foundry	5 0			23.00
Cleveland No. 4 forge	4 17½			18.78
Cleveland basic	5 7½			24.05
East Coast mixed	5 3½			23.65
Ferromanganese	13 0			92.00
Ferromanganese*	20 0			91.20
Rails, 60 lb. and up	9 10	to £10 0s.		43.70 to \$46.00
Billets	7 5	to 8 0		33.35 to 36.80
Sheet and tin plate bars, Welsh	9 2½			41.61
Tin plates, base box	1 3	to 1 3½		5.26 to 5.28
				C. per Lb.
Ship plates	9 10	to 10 0		1.95 to 2.05
Boiler plates	12 10	to 13 0		2.56 to 2.66
Tees	10 5	to 10 15		2.11 to 2.20
Channels	9 10	to 10 0		1.95 to 2.05
Beams	9 5	to 9 15		1.90 to 2.00
Round bars, ½ to 3 in.	11 0	to 11 10		2.26 to 2.36
Galvanized sheets, 24 g.	17 15	to 18 0		3.64 to 3.69
Black sheets, 24 gage	13 10			2.77
Black sheets, Japanese specifications	15 5			3.13
Steel hoops	12 0	& 12 10*		2.46 & 2.56*
Cold rolled steel strip, 20 g.	17 5			3.54
Cotton ties, Indian specifications	15 0			3.08

\*Export price. †Ex-Ship, Tees, nominal.

## Continental Prices, All F. O. B. Channel Ports, Delivery as Specified

Foundry pig iron:				
Belgium, July	£5 5s.	to £5 7½s.	\$24.15 to	\$24.71
France, July	5 5	to 5 7½	24.15 to	24.71
Luxemburg, July	5 5	to 5 7½	24.15 to	24.71
Billets:				
Belgium, July	6 10	to 6 12½	29.90 to	30.45
France	6 10		29.90	
Merchant bars:				
Belgium, July	7 15	to 8 0	1.59 to	1.64
Luxemburg, July	7 15		1.59	
France	7 10		1.54	
Joists (beams):				
Belgium, July	7 7½	to 7 10	1.51 to	1.54
Luxemburg	7 15		1.59	
France	7 10	to 7 12½	1.54 to	1.57
¾-in. plates:				
Belgium, July	8 5	to 8 10	1.69 to	1.74
¾-in. plates:				
Luxemburg	7 15		1.59	
Belgium	7 10		1.54	

## Buyers' Strike in Steel—Fuel Prices Still High—Order for Large New British Plate Mill

LONDON, ENGLAND, July 12.—The iron and steel markets are in by no means a healthy state. There seems to be a strike of buyers, except for urgent requirements and, as a result, makers generally are pressing for new orders. In pig iron, prices have a decidedly weak tone and No. 3 Cleveland G. M. B. is now worth no more than 110s. At this figure, however, consumers are not keen and there is no doubt that values will have to fall considerably lower before there is any general revival.

Of course, the most important factor bearing upon prices is the question of fuel, and while the present high levels for such are maintained, it is difficult to see how iron and steel producers can make any substantial reductions. Should the Ruhr deadlock come to an end, however, it is more than probable that fuel prices would come down with a run, as it is really only the strong export demand which has kept prices up so high. An early settlement, however, now seems more remote, especially as the continent is again buying British coal and coke in large quantities, and Germany is endeavoring to secure supplies of steel, not only for her home use but also for export. The German works, indeed, are said to be very busy on home orders, and most of them are full up for two to four months ahead. During last week Germany has made purchases of hematite up

to about 10,000 tons, but this is about the only important move in this market. On the West Coast furnaces have already been put out of action.

There is nothing fresh in manufactured iron and steel, consumers taking little or no interest, and for heavy material in general makers are wanting fresh orders.

Continental works are apparently after orders but makers, evidently apprehensive of a shortage of fuel, are at present raising their prices. These are now being quoted in sterling, instead of in francs, so that the fluctuations of the exchange rates have no effect upon the export levels. They do not, however, appear to be getting much business.

Armstrong, Whitworth & Co. have recently secured an order for 25 heavy main line locomotives for the Buenos Aires Great Southern Railway, which are for freight traffic, and will consume oil fuel.

An interesting announcement is that the Consett Iron Co. has recently placed an order with Davy Brothers, Sheffield, for a new plate mill plant. This order is said to be the largest of its kind placed in this country. It includes a 40-in. electrically driven slabbing mill, with universal manipulator, 44-in. x 12-in. steel hydraulic slab shears, 32-in. x 6-ft. 6-in. electrically driven 3-high light plate mill, with deflecting tables and 42-in. x 9-ft. 6-in. electrically driven 2-stand reversing heavy plate mill, and the whole of the handling equipment for the plate-finishing department.

# Prices Finished Iron and Steel f.o.b. Pittsburgh

Carload Lots

**Plates**  
Sheared, tank quality, base, per lb.....2.50c.

**Structural Material**  
Beams, channels, etc., base, per lb.....2.50c.  
Sheet piling .....2.65c.

**Iron and Steel Bars**  
Soft steel bars, base, per lb.....2.40c.  
Soft steel bars for cold finishing.....\$3 per ton over base  
Reinforcing steel bars, base.....2.40c.  
Refined iron bars, base, per lb.....3.25c.  
Double refined iron bars, base, per lb.....4.85c. to 5.00c.  
Stay bolt iron bars, base, per lb.....8.00c. to 8.50c.

**Hot-Rolled Flats**  
Hoops, ordinary gages and widths, base, per lb.3.15c. to 3.30c.  
Hoops, light gage, under 1 in. wide.....3.30c. to 3.50c.  
Bands, base, per lb.....3.15c. to 3.30c.  
Strips, base, per lb.....3.00c. to 3.30c.  
Cotton ties, per bundle of 45 lb.....\$1.61

**Cold-Finished Steels**  
Bars and shafting base, per lb.....3.25c.  
Strips, base, per lb.....5.00c. to 5.25c.

**Wire Products**  
Nails, base, per keg.....\$3.00  
Galvanized nails, 1 in. and over.....\$2.25 over base  
Galvanized nails, less than 1 in.....2.50 over base  
Bright plain wire, base, No. 9 gage, per 100 lb.....2.75  
Annealed fence wire, base, per 100 lb.....2.90  
Spring wire, base, per 100 lb.....3.70  
Galvanized wire, No. 9, base, per 100 lb.....3.35  
Galvanized barbed, base, per 100 lb.....3.80  
Galvanized staples, base, per keg.....3.80  
Painted barbed wire, base, per 100 lb.....3.45  
Polished staples, base, per keg.....3.45  
Cement coated nails, base, per count keg.....2.70  
Woven fence, carloads (to jobbers).....67½ per cent off list  
Woven fence, carloads (to retailers).....65 per cent off list

**Bolts and Nuts**  
Machine bolts, small, rolled threads..60 and 10 per cent off list  
Machine bolts, small, cut threads..50, 10 and 10 per cent off list  
Machine bolts, larger and longer..50, 10 and 10 per cent off list  
Carriage bolts, ½ x 6 in.:  
Smaller and shorter, rolled threads  
Cut threads .....50, 10 and 10 per cent off list  
Larger and longer .....50 and 10 per cent off list  
Lag bolts .....60 and 10 per cent off list  
Plow bolts, Nos. 1, 2 and 3 heads.....50 and 10 per cent off list  
Other style heads .....20 per cent extra  
Machine bolts, c.p.c. and t. nuts, ½ x 4 in.  
45 and 10 per cent off list  
Larger and longer sizes .....45 and 10 per cent off list  
Hot pressed square or hex. nuts, blank.....3.75c. off list  
Hot pressed nuts, tapped.....3.75c. off list  
C.p.c. and t. square or hex. nuts, blank.....3.75c. off list  
C.p.c. and t. square or hex. nuts, tapped.....3.75c. off list  
Semi-finished hex. nuts:  
½ in. and smaller, U. S. S.....80 per cent off list  
¾ in. and larger, U. S. S.....75 per cent off list  
Small sizes, S. A. E.....80 and 5 per cent off list  
S. A. E., ½ in. and larger.....75 and 5 per cent off list  
Stove bolts in packages.....75, 10 and 5 per cent off list  
Stove bolts in bulk.....75, 10, 5 and 2½ per cent off list  
Tire bolts .....50, 10 and 10 per cent off list  
Bolt ends with hot pressed nuts..50, 10 and 10 per cent off list  
Turnbuckles, with ends, ½ in. and smaller  
55 and 5 to 50 per cent off list  
Turnbuckles, without ends, ½ in. and smaller  
70 and 10 to 65 and 5 per cent off list  
Washers .....5c. to 5.25c. off list

**Cap and Set Screws**  
Milled square and hex. head cap screws,  
65 and 10 per cent off list  
Milled set screws .....65 and 10 per cent off list  
Upset cap screws .....75 per cent off list  
Upset set screws .....75 per cent off list  
Milled studs .....50 per cent off list

**Rivets**  
Large structural and ship rivets, base, per 100 lb.\$3.00 to \$3.10  
Large boiler rivets, base, per 100 lb.....3.10 to 3.20  
Small rivets .....65 and 10 off list

**Track Equipment**  
Spikes, ½ in. and larger, base, per 100 lb.....\$3.15  
Spikes, ½ in., ⅞ in. and ¾ in., per 100 lb.....\$3.50 to 3.75  
Spikes, ⅞ in.....3.50 to 3.75  
Spikes, boat and barge, base, per 100 lb.....3.50 to 3.75  
Track bolts, ¾ in. and larger, base, per 100 lb..4.00 to 4.25  
Track bolts, ½ in. and ¾ in., base, per 100 lb..5.00 to 5.50  
Tie plates, per 100 lb.....2.55 to 2.60  
Angle bars, base, per 100 lb.....2.75

## Welded Pipe

Inches	Steel Black	Galv.	Butt Weld		
			Inches	Iron Black	Galv.
½	45	19½	¾ to ¾	+11	+39
¾ to ¾	51	25½	¾	22	2
1	56	42½	¾	28	11
1½	60	48½	1 to 1½	30	13
2 to 3	62	50½			

Lap Weld					
2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends					
¾	41	24½	2 to 3	61	50½
¾ to ¾	47	30½	¾ to ¾	+19	+54
1	53	42½	¾	21	7
1½	58	47½	¾	28	12
2 to 1½	60	49½	1 to 1½	30	14

Lap Weld, extra strong, plain ends					
2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts are increased by one point, with supplementary discount of 5 per cent on black and 1½ points, with a supplementary discount of 5 per cent, on galvanized.

## Boiler Tubes

Lap Welded Steel		Charcoal Iron	
2 to 2½ in.	27	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1½ in.	+8
3 in.	40	2 to 2¾ in.	2
3¼ to 3½ in.	42½	2½ to 3 in.	7
4 to 13 in.	46	3½ to 4½ in.	9

Less carload lots 4 points less.  
**Standard Commercial Seamless Boiler Tubes**  
**Cold Drawn**  
1 in.....55  
1¼ and 1½ in.....47  
1¾ in.....31  
2 and 2½ in.....23  
2½ and 2¾ in.....32  
**Hot Rolled**  
3 and 3¼ in.....33  
3½ in. and 3¾ in.....39  
4 in.....43

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extras for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be sold at mechanical tube list and discount. Intermediate sizes and gages not listed take price of net larger outside diameter and heavier gage.

**Seamless Mechanical Tubing**  
Carbon under 0.30, base.....83 per cent off list  
Carbon 0.30 to 0.40, base.....81 per cent off list  
Plus usual differentials and extras for cutting. Warehouse discounts range higher.

Seamless Locomotive and Superheater Tubes			
Cents per Ft.		Cents per Ft.	
2-in. O.D. 12 gage...	15	2¼-in. O.D. 10 gage..	20
2-in. O.D. 11 gage...	16	3-in. O.D. 7 gage....	35
2-in. O.D. 10 gage...	17	1½-in. O.D. 9 gage..	15
2¼-in. O.D. 12 gage..	17	5½-in. O.D. 9 gage..	55
2¼-in. O.D. 11 gage..	18	5½-in. O.D. 9 gage..	57

## Tin Plate

Standard cokes, per base box.....\$5.50

## Terne Plate

(Per package, 20 x 28 in.)			
8-lb. coating, 100 lb.		20-lb. coating I. C....	\$14.90
base.....\$11.00		25-lb. coating I. C....	16.20
8-lb. coating I. C....	11.30	30-lb. coating I. C....	17.35
12-lb. coating I. C....	12.70	35-lb. coating I. C....	18.35
15-lb. coating I. C....	13.95	40-lb. coating I. C....	19.35

## Sheets

### Blue Annealed

Nos. 9 and 10 (base), per lb.....3.00c.  
**Box Annealed, One Pass Cold Rolled**

No. 28 (base), per lb.....3.75c. to 3.85c.

### Automobile Sheets

Regular auto body sheets, base (22 gage), per lb....5.35c.  
**Galvanized**

No. 28 (base), per lb.....5.00c.

### Long Ternes

No. 28 gage (base), 8-lb. coating, per lb.....5.30c.

### Tin-Mill Black Plate

No. 28 (base), per lb.....3.85c.

Manufacturers have pamphlets, which can be had upon application, giving price differentials for gage and extras for length, width, shearing, etc.

## Freight Rates

All freight rates from Pittsburgh on finished iron and steel products, in carload lots, to points named, per 100 lb., are as follows:

Philadelphia, domestic.....\$0.32	Buffalo.....\$0.265	St. Louis.....\$0.43	Pacific Coast.....\$1.34
Philadelphia, export...0.235	Cleveland.....0.215	Kansas City.....0.735	Pac. Coast, ship plates 1.20
Baltimore, domestic...0.31	Cleveland, Youngstown	Kansas City (pipe)...0.705	Birmingham.....0.58
Baltimore, export...0.225	Comb.....0.19	St. Paul.....0.60	Memphis.....0.56
New York, domestic...0.34	Detroit.....0.29	Omaha.....0.735	Jacksonville, all rail..0.70
New York, export...0.255	Cincinnati.....0.29	Omaha (pipe).....0.705	Jacksonville, rail and water.....0.415
Boston, domestic...0.365	Indianapolis.....0.31	Denver.....1.27	New Orleans.....0.67
Boston, export...0.255	Chicago.....0.34	Denver (pipe).....1.215	

The minimum carload to most of the foregoing points is 36,000 lb. To Denver the minimum loading is 40,000 lb., while to the Pacific Coast on all-iron and steel products, except structural material, the minimum is 80,000 lb. On the latter item the rate applies to a minimum of 50,000 lb., and there is an extra charge of 9c. per 100 lb. on carloads of a minimum of 40,000 lb. On shipments of wrought iron and steel pipe to Kansas City, St. Paul, Omaha and Denver the minimum carload is 46,000 lb. On iron and steel items not noted above the rates vary somewhat and are given in detail in the regular railroad tariffs.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of call on most steamship lines, via the Panama Canal, are as follows: Pig iron, 30c. to 40c.; ship plates, 30c. to 40c.; ingot and muck bars, structural steel, common wire products including cut or wire nails, spikes, and wire hoops, 30c. to 40c.; sheets and tin plates, 30c. to 40c.; rods, wire rope cable and strands, 75c.; wire fencing, netting and stretcher, 49c.; pipes not over 8 in. in diameter, 50c.; over 8 in. in diameter, 2½c. per in. or fraction thereof additional. All prices per 100 lb. in carload lots, minimum 40,000 lb.



# Prices of Raw Materials, Semi-Finished and Finished Products

## Ores

### Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 55 per cent iron.....	\$6.45
Old range non-Bessemer, 51½ per cent iron.....	5.70
Mesabi Bessemer, 55 per cent iron.....	6.20
Mesabi non-Bessemer, 51½ per cent iron.....	5.55

### Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian.....	11½c.
Iron ore, Swedish, average 66 per cent iron.....	10.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus, nominal.....	48c.
Manganese ore, ordinary, 48 per cent manganese, from the Caucasus.....	42c.
Manganese ore, Brazilian or Indian, nominal.....	45c.
Tungsten ore, per unit, in 60 per cent concentrates.....	\$8.50
Chrome ore, basic, 48 per cent Cr <sub>2</sub> O <sub>3</sub> , crude, per ton, c.i.f. Atlantic seaboard.....	\$18.00 to 28.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS <sub>2</sub> , New York.....	75c. to 85c.

## Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton.....	\$117.50
Ferromanganese, British, 80 per cent, f.o.b. Atlantic port, duty paid.....	117.50
Spiegeleisen, domestic, 19 to 21 per cent, per ton, furnace.....	\$45.00 to 47.50
Spiegeleisen, domestic, 16 to 19 per cent, furnace, per ton.....	44.00 to 46.50
Ferrosilicon, 50 per cent, delivered, per gross ton.....	77.50
Ferrosilicon, Bessemer, 10 per cent, per ton, furnace.....	43.50
Ferrosilicon, Bessemer, 11 per cent, per ton, furnace.....	46.80
Ferrosilicon, Bessemer, 12 per cent, per ton, furnace.....	50.10
Ferrosilicon, Bessemer, 13 per cent, per ton, furnace.....	54.10
Ferrosilicon, Bessemer, 14 per cent, per ton, furnace.....	59.10
Silvery iron, 6 per cent, per ton, furnace.....	32.00
Silvery iron, 7 per cent, per ton, furnace.....	33.00
Silvery iron, 8 per cent, per ton, furnace.....	34.50
Silvery iron, 9 per cent, per ton, furnace.....	36.50
Silvery iron, 10 per cent, per ton, furnace.....	38.50
Silvery iron, 11 per cent, per ton, furnace.....	41.80
Silvery iron, 12 per cent, per ton, furnace.....	45.10
Ferrotungsten, per lb. contained metal.....	88c. to 90c.
Ferrochromium, 4 to 6 per cent carbon, 60 to 70 per cent Cr. per lb. contained Cr. delivered.....	12c.
Ferrochromium, 6 to 7 per cent carbon, 60 to 70 per cent Cr., per lb.....	11.50c.
Ferrovandium, per lb. contained vanadium.....	\$3.50 to \$4.00
Ferrocobaltitium, 15 to 18 per cent, per net ton.....	200.00

## Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines.....	\$22.00
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines.....	23.50

### Per 1000 f.o.b. works:

Fire Clay:	High Duty	Moderate Duty
Pennsylvania.....	\$48.00 to \$51.00	\$43.00 to \$46.00
Ohio.....	45.00 to 47.00	40.00 to 43.00
Kentucky.....	45.00 to 47.00	42.00 to 45.00
Illinois.....	48.00 to 50.00	45.00 to 47.00
Missouri.....	48.00 to 50.00	38.00 to 43.00
Ground fire clay, per net ton.....	6.50 to 9.50	
Silica Brick:		
Pennsylvania.....	42.00 to 45.00	
Chicago.....	52.00	
Birmingham.....	48.00	
Ground silica clay, per net ton.....	10.00	
Magnesite Brick:		
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.).....	65.00	
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.).....	40.00	
Chrome Brick:		
Standard size, per net ton.....	50.00	

## Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over.....	\$42.50
Rolling billets, 2-in. and under.....	42.50
Forging billets, ordinary carbons.....	47.50
Sheet bars, Bessemer.....	42.50
Sheet bars, open-hearth.....	42.50

Slabs.....	\$42.50
Wire rods, common soft, base, No. 5 to ¼-in.....	51.00
Wire rods, common soft, coarser than ¼-in.....	\$2.50 over base
Wire rods, screw stock.....	\$5 per ton over base
Wire rods, carbon 0.20 to 0.40.....	\$3 per ton over base
Wire rods, carbon 0.41 to 0.55.....	\$5 per ton over base
Wire rods, carbon 0.56 to 0.75.....	\$7.50 per ton over base
Wire rods, carbon over 0.75.....	\$10 per ton over base
Wire rods, acid.....	\$15 per ton over base
Skelp, grooved, per lb.....	2.40
Skelp, sheared, per lb.....	2.40
Skelp, universal, per lb.....	2.40

## Finished Iron and Steel, f.o.b. Mill

Rails, heavy, per gross ton.....	\$43.00
Rails, light, new steel, base, per lb.....	2.25c.
Rails, light, rerolled, base, per lb.....	2.10c. to 2.15c.
Spikes, ½-in. and larger, base, per 100 lb.....	\$3.15
Spikes, ¼-in., ⅜-in. and ½-in., base per 100 lb.....	\$3.25 to 3.75
Spikes, ⅝-in., base, per 100 lb.....	3.25 to 3.75
Spikes, boat and barge, base, per 100 lb.....	3.50 to 3.75
Track bolts, ¾-in. and smaller, base, per 100 lb.....	4.15 to 4.50
Track bolts, ¾-in. and larger, base, per 100 lb.....	4.75 to 5.50
Tie plates, per 100 lb.....	2.55 to 2.60
Angle bars, per 100 lb.....	2.75
Bars, common iron, base, per lb., Chicago mill.....	2.50c.
Bars, common iron, Philadelphia mill.....	2.35c.
Bars, common iron, Pittsburgh mill.....	2.40c.
Bars, rails, steel reinforcing, base, per lb.....	2.15c. to 2.25c.
Ground shafting, base, per lb.....	3.65c.
Cut nails, base, per keg.....	\$3.25

## S. A. E. Semi-finished Castellated Nuts and U. S. S. Semi-finished Slotted Nuts

(To jobbers and consumers in large quantities f.o.b. Pittsburgh)

	Per 1000	
	S. A. E.	U. S. S.
¼-in.....	\$4.80	\$4.80
½-in.....	5.50	6.00
¾-in.....	6.50	7.00
1-in.....	9.00	9.50
1½-in.....	11.00	11.50
2-in.....	15.00	15.00
¾-in.....	19.50	20.00
1-in.....	28.50	28.50
1½-in.....	37.00	37.50
2-in.....	58.50	60.50
1¼-in.....	88.00	97.00
1½-in.....	132.00	132.00
1¾-in.....	176.00	176.00
2-in.....	220.00	220.00

Larger sizes—Prices on application

## Alloy Steel

S. A. E. Series Numbers	Bars 100 lb.
2100 (½% Nickel, 10 to 20 per cent Carbon).....	\$3.50
2300 (3½% Nickel).....	5.50
2500 (5% Nickel).....	8.00
3100 (Nickel Chromium).....	4.50
3200 (Nickel Chromium).....	6.25
3300 (Nickel Chromium).....	8.25
3400 (Nickel Chromium).....	7.25
5100 (Chromium Steel).....	4.00
5200 (Chromium Steel).....	8.25
6100 (Chromium Vanadium bars).....	5.25
6100 (Chromium Vanadium spring steel).....	5.00
9250 (Silico Manganese spring steel).....	4.00
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium).....	5.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum).....	4.75
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum).....	4.50
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum).....	4.50

Above prices are for hot-rolled alloy steel bars, forging quality, per 100 lb. f.o.b. Pittsburgh. Billets 4 x 4 in. and larger are \$10 per gross ton less than net ton price for bars of same analyses. On smaller than 4 x 4-in. billets down to and including 2½-in. sq. there is a size extra of \$10 per gross ton; on billets smaller than 2½-in. sq., the net ton bar price applies.

## RAILROAD EQUIPMENT BUYING

### Better Inquiry, Particularly for Repair Parts, But Not Much Actually Pending

A little better inquiry for railroad equipment, particularly repair parts for freight cars, is in evidence. The Mid-West Engine Co., Indianapolis, has engaged in car repair work.

After eliminating various inquiries which have appeared in the recent past as now not likely to develop into business, the total number of cars now before car builders is probably less than 2500 and there is not a great amount of pending business in center constructions or other steel parts. The subjoined list covers the main items. It is understood that 400 grain cars for South Africa have been placed in the United States.

Erie Railroad, 498 coke cars to be converted into box cars.

Canadian National Railway, 1000 automobile cars to be placed in the United States.

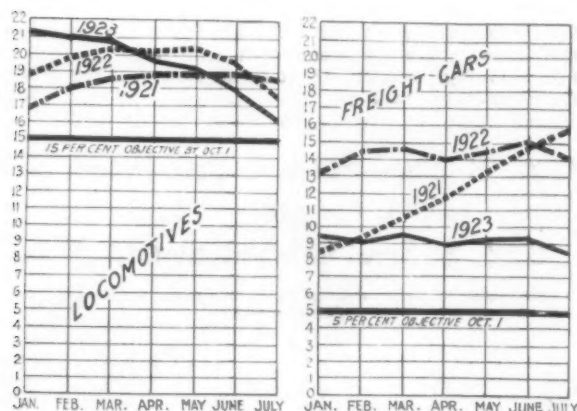
Santa Fe, 300 gondolas and 200 frame cars.

Missouri Pacific, 60 passenger equipment cars.

Delaware, Lackawanna & Western, 200 refrigerator cars with steel underframes.

Chesapeake & Ohio, 3 refrigerator cars.

Southern Railway, 1000 sets of center sills.



The chart shows the percentage of freight cars and locomotives awaiting repairs as of the first of each month, in the first seven months of this year and in 1921 and 1922.

Nickel Plate, 300 box car underframes and 10 caboose underframes.

Pere Marquette, 500 refrigerator car underframes.

The Philadelphia & Reading is reported having placed 400 steel hopper cars to the Middletown plant of the Standard Steel Car Co.

The Union Railroad has ordered 10 locomotives from the Lima Locomotive Co.

The Mexican Petroleum Co. has ordered 25 oil tank cars from the American Tank Car Co., though order is unconfirmed.

The Central Railroad of New Jersey is asking bids on the repair of 300 box cars.

The New York, Chicago & St. Louis is inquiring for 300 steel underframes for box cars.

The Pennsylvania Equipment Co., Norwood Station, Pa., is in the market for a 10 to 12-ton dinkey locomotive for a 29-in. gage track.

### Jones & Laughlin Steel Corporation May Build Bar Mill

PITTSBURGH, July 24.—The Jones & Laughlin Steel Corporation has petitioned the Pittsburgh City Council for the vacating of South Thirty-fourth Street between the Monongahela River and the right of way of the Pittsburgh & Lake Erie Railroad. If the petition is granted, it is the intention of the corporation to use the land for the installation of a new bar mill and the enlargement of the steel works at that point.

## FABRICATED STEEL BUSINESS

### Week's Awards Large and Chiefly for Private Enterprises—Considerable New Work

Including 2500 tons for export and over 11,000 tons for private undertakings, the week's awards for fabricated steel work at 23,000 to 24,000 tons in sizable projects were notable. A new building proposal in Chicago, the Palmer Hotel, put the total of fresh inquiries to fully 18,500 tons. The chief items are as follows:

Elks' building, Queens, L. I., 450 tons, to an unnamed fabricator.

Miners' Bank, Wilkes-Barre, Pa., 400 tons, to an unnamed fabricator.

New York Central, for bridge at Painesville, Ohio, and one at Englewood, Chicago, 600 tons, to the Fort Pitt Bridge Co.

Pan-American Petroleum Co., tanks in Louisiana, 2400 tons, to the American Bridge Co.

Vehicular tunnel, New York approach, 4500 tons, to the American Bridge Co.

New York Central, three bridges, 250 tons, to the Bethlehem Steel Bridge Co.

Tanks in California, 2100 tons, to the Lancaster Boiler Works.

Western Electric Co., Kearney, N. J., 1900 tons, to unnamed fabricator.

Loft building, 230 West Thirty-eighth Street, New York, 1300 tons, to Levering & Garrigues Co.

Apartment house, Henry and Pierpont Streets, Brooklyn, 500 tons, to Levering & Garrigues Co.

Public School No. 72, New York, 1000 tons, to A. E. Norton, Inc.

Theater, Staten Island, New York, 300 tons, to the Hinkle Iron Co.

University of Washington, Seattle, Wash., library building, 500 tons, to Poole & McGonigle.

Mt. Vernon Car Mfg. Co., Mt. Vernon, Ill., blacksmith shop, 500 tons, to McClintic-Marshall Co.

Fisher Body Corporation, Cleveland, store room, 160 tons, to Van Dorn Iron Works Co., and factory addition, 250 tons, to the Austin Co.

Columbia Chemical Co., division Pittsburgh Plate Glass Co., Barberton, Ohio, 150 tons, to Rogers Iron Co.

Shibaura Engineering Co., Japan, steel plant buildings, 2500 tons, to United States Steel Products Co., to be fabricated by American Bridge Co.

Peoria & Eastern Illinois Railroad, viaduct, 1300 tons, Fort Pitt Bridge Co., low bidder.

Big Four Railroad, bridge, 150 tons, to Mt. Vernon Bridge Co.

Milwaukee, State-Martin Street bridge, 1500 tons, to Milwaukee Bridge Co.

Belle City Malleable Iron Co., Racine, Wis., foundry addition, 300 tons, to Kenwood Bridge Co.

Saco-Lowell Shops, Lowell, Mass., foundry, 120 tons, to McClintic-Marshall Co.

### Structural Projects Pending

Inquiries for fabricated steel work include the following:

Southern Railway, highway bridge, 1500 tons, and bridge repair material, 300 tons.

Masonic temple, Springfield, Mass., 500 tons.

Chicago, Rock Island & Pacific Railroad, girder spans, 1400 tons.

Great Northern Railway, bridge work, 1250 tons.

First National Bank building, Davenport, Iowa, 1000 tons.

Elks' Club, Milwaukee, 1000 tons; inquiry issued before, but now revised.

State legislative building, Olympia, Wash., 400 tons.

Palmer House, Chicago, 10,000 to 12,000 tons; bids to be asked soon; Holabird & Roche, architects.

U. S. Engineers' Office, Huntington, W. Va., steel derrick boat, 100 tons, bids close Aug. 16.

Neil House, Columbus, Ohio, is being redesigned, and will be of reinforced concrete construction.

Office building, Worcester, Mass., 1000 tons.

Gas holder, Beverly, Mass., 600 tons.

North Vincent building, Cleveland, 200 tons, bids taken.

Richard Dudgeon, Inc., Broome and Columbia Streets, New York, has been incorporated with capital stock of \$100,000, assuming control of the organization conducted by Mr. Dudgeon for some time in the manufacture of hydraulic machinery. Business will be continued as formerly and proposed enlargement will be taken up as soon as an adjustment is effected in the affairs of railroads, with which most of its business is done. The incorporators are: R. L. Dudgeon, J. W. Nelson and J. Moore.



# NON-FERROUS METALS

## The Week's Prices

	Copper, New York		Straits	Lead		Zinc	
		Electro- lytic*	Tin New York	New York	St. Louis	New York	St. Louis
July	Lake						
18.....	15.00	14.37½	38.12½	6.10	5.95	6.45	6.10
19.....	14.87½	14.37½	38.32½	6.15	5.95	6.42½	6.07½
20.....	14.87½	14.37½	39.37½	6.20	5.95	6.45	6.10
21.....	14.87½	14.50	.....	6.20	6.00	6.45	6.10
23.....	15.00	14.50	39.62½	6.25	6.10	6.45	6.10
24.....	15.00	14.50	39.62½	6.25	6.10	6.45	6.10

Refinery quotation; delivered price ¼c. higher.

## New York

NEW YORK, July 24.

There is very little activity in any of the markets and price changes are not extreme. There is a little more buying of copper than recently at fairly firm prices. The tin market has been moderately active. The lead market has advanced from the low point. Demand for zinc is light and prices are practically stationary.

**Copper.**—A better tone is reflected in the electrolytic copper market and sellers report fairly good business. Inquiries are better than in some time and some of them have resulted in orders, most of which have been placed at 14.75c., delivered, with the majority of the deliveries scheduled for August and September. This is believed to indicate that copper consumers have fairly good prospects for an active early fall business. Export demand, while not heavy, is reported fairly good. Lake copper is quoted from 14.87½c. to 15c., delivered.

**Tin.**—About the middle of last week a more active market in Straits tin developed, which resulted in fairly good buying. On July 17 from 350 to 400 tons changed hands, most of it taken by dealers, some of whom were evidently covering short accounts. On July 19 sales of 400 to 500 tons were made, with consumers the principal buyers, and on the next day, Friday, fair sales were recorded, with consumers doing the buying even at the higher price levels. On Saturday, July 21, there was a good demand but few sellers. Yesterday and today the activity of the days referred to has almost completely disappeared and the market is again stagnant. Spot Straits tin is quoted today in New York at 39.62½c., with prices in London about £10 per ton higher than a week ago at £187 for spot standard, £187 15s. for future standard and £190 for spot Straits. Arrivals thus far this month have been 4925 tons, with 4722 tons reported afloat.

**Lead.**—The early part of last week there was a fairly active market, with consumers loading up at the bottom prices which then prevailed. Following this there was an advance in prices in the outside market caused partly by demand from dealers, but the activity referred to started to vanish toward the close of the week. Yesterday, somewhat to the surprise of the trade, the leading interest advanced its price from 6c. to 6.25c., New York. Sales are reported to have been made in the outside market this week as high as 6.30c., New York. The St. Louis market is correspondingly higher at 6.10c. to 6.15c., New York.

**Zinc.**—There is almost no activity and the market is largely a waiting one. Changes in prices have been slight. There is very little demand from consumers and sellers are not pressing the market. One cause for the attitude of the latter is the price of ore, which continues high, rendering its refining unprofitable at the present price of the metal.

**Nickel.**—Shot and ingot metal are quoted unchanged at 29c. to 32c. per lb., with electrolytic nickel held at 32c. by the leading producers. In the outside spot market quotations for shot and ingot nickel are 29c. to 32c. per lb.

**Antimony.**—The market is stronger, partly because of the firmness in the Chinese market. Wholesale lots

of Chinese metal for prompt or future delivery are quoted 7c. to 7.20c., New York, duty paid.

**Aluminum.**—Virgin metal, 98 to 99 per cent pure, is quoted in wholesale lots by importers at 26.50c. to 27c., New York, duty paid in cases where they can obtain it from their principals. The leading domestic producer does not make public its quotations.

**Old Metals.**—There has been a little inquiry in the market during the week, but business generally has been quiet with values practically unchanged. Dealers' selling prices are as follows:

	Cents Per Lb.
Copper, heavy and crucible.....	14.25
Copper, heavy and wire.....	13.25
Copper, light and bottoms.....	11.25
Heavy machine composition.....	11.00
Brass, heavy.....	8.25
Brass, light.....	7.00
No. 1 red brass or composition turnings...	9.00
No. 1 yellow rod brass turnings.....	7.50
Lead, heavy.....	5.25
Lead, tea.....	4.00
Zinc.....	4.50

## Chicago

**CHICAGO, July 24.**—The non-ferrous metal markets are quiet. Tin is higher and lead is stronger. We quote in carload lots, Lake copper, 15.25c.; tin, 41.50c.; lead, 6.15c.; spelter, 6.15c.; antimony, 8.50c., in less than carload lots. On old metals we quote copper wire, crucible shapes and copper clips, 11.50c.; copper bottoms, 10c.; red brass, 8.50c.; yellow brass, 6c.; lead pipe, 4.50c.; zinc, 3.75c.; pewter No. 1, 20c.; tin foil, 22.50c.; block tin, 27.50c.; all buying prices for less than carload lots.

## Blast Furnace Operations Curtailed in Mahoning Valley

**YOUNGSTOWN, July 24.**—Blast furnace operations are still slackening in the Mahoning Valley. The Youngstown Sheet & Tube Co. has blown out No. 4 stack in its East Youngstown group for relining. No. 3 furnace in Hazelton group of the Republic Iron and Steel Co. will suspend for overhauling and modernization. In the Youngstown district, comprising Mahoning and Shenango Valleys, 36 furnaces are now pouring, of 46, as compared with 43 active stacks six weeks ago.

Of 117 independent sheet mills in the Mahoning Valley, 100 are rolling. Six of seven open-hearth furnaces of the Trumbull Steel Co. have resumed, following suspension due to a break in the blooming mill.

## Will Receive Bids on Suspension Bridge Over Delaware River

**PHILADELPHIA, July 24.**—The Delaware River Bridge Joint Commission will receive bids for the main cables of the new suspension bridge over the Delaware River at Philadelphia on Aug. 15. These cables are to be the largest yet used in any suspension bridge, the diameter being 30 in. They will require approximately 6800 tons of No. 6 galvanized bridge wire. The contract also includes 105,000 lineal feet of 2¼ in. wire rope and 500 tons of electric furnace steel castings. There are in addition 50 tons of high tensile bolts. Names of general contractors who are figuring on this work can be secured from the Joint Commission at 816 Widener Building, Philadelphia.

Dallas E. Winslow, who recently purchased the Paterson Motor Car Co., Flint, Mich., has purchased the Cincinnati division of the Standard Parts Co., Cleveland, for a consideration of \$400,000. The entire Cincinnati equipment will be moved to Flint immediately, according to Mr. Winslow.

WILL PROCEED CAREFULLY

Plans for Abolishing the 12-Hour Day Are Being Worked Out

PITTSBURGH, July 24.—It is apparent now that the elimination of the 12-hr. day in the steel industry is going to be a gradual, orderly process with as little disturbance to operating, business and price conditions as possible. Nobody who is well informed as to steel plant conditions either as to equipment or labor supplies expects the change can be fully effective in six months and the more general opinion is that a longer period will be required if the change is to be made smoothly. Although nothing was said in the correspondence between the President and Judge Gary as to the setting up of the 8-hr. day or the three shift working system, this has been injected into consideration of the matter, since a 10-hr. day does not harmonize well with the idea of continuous operations, and it is in those departments of steel plants where operation is constant that the problem of reducing working hours is the greatest.

Plans have not yet been worked out as to just how the shorter day will be applied. Few, however, subscribe to the idea that it will be possible to get the men now working the longer day to accept the shorter turn at the present hourly or tonnage rates. It is the opinion of those who have done some investigating and who have in mind the smooth working of the change that some sort of a compromise will be necessary

whereby the men and the companies divide the cost. Thus, if the men now working 12 hours go on an 8-hr. turn, they will be paid for 10 hours at the present rate. Common labor around a blast furnace now getting \$4.80 for 12 hours would get \$4 for 8 hours under such a suggestion. This would mean that the men sacrifice 80c. a day in wages for the shorter day and the company a like amount. Corresponding adjustments in the scales of other classes of labor, it is contended, would serve to close the gate against the activities of organized labor.

The Question of Costs

It is a matter of serious doubt among those who have looked into the matter whether the change will add enough to costs to warrant any material increase in selling prices. It is known that the increased costs with a Youngstown district plant where only 5 per cent of the men now work longer than 8 hours was slight. The increase in costs with most mills in this district will come through the scrapping of obsolete equipment and the substitution of labor-saving machinery, which will reduce the number of men required for a given kind of work. It will take time to bring about such a change and that is why the well informed do not look for the total elimination of the long day in six months. Hope for the success of the movement rests in the reduction of the number of jobs which take long periods of time rather than in the possibility that the increased number of men required will be readily available.

Cold-Rolled Strip Cutting Extras Have Been Revised and Increased

A new card of extras recently was issued by leading manufacturers of cold-rolled strip steel, the principal change in which as compared with the old card is in the charges for cutting to lengths of 24 in. and longer. The

These scholarships were established in 1919 as a means of perpetuating the memory of employees of the Westinghouse Electric & Mfg. Co. and its subsidiary companies who took part in the world war. Each scholarship carries with it the annual payment of \$500 for a period not to exceed four years, the payment to be applied toward an engineering education in any technical school or college selected by the successful candi-

Thickness	1.00 and Thicker	.099 to .050	.049 to .036	.034 to .031	.030 to .026	.024 to .020	.019 to .017	.016 to .015	.014 to .013	.012	.011	.010		
Extras for thickness.....	Base	.20	.45	.45	.60	.80	.80	1.10	2.10	2.65	3.30	3.95	4.20	4.65
Extras for soft or intermediate tempers..	.45	.45	.55	.55	.70	.70	.70	.70	...	No Extra	...	...	...	...
Extras for narrow widths—														
Under 1½ in. to 1 in. inclusive.....	.25	.25	.25	.25	.40	.40	.40	.40	.50	.50	.50	.50	.50	.50
Under 1 in. to ½ in. inclusive.....	.45	.45	.45	.45	.60	.60	.60	.60	.70	.70	.70	.70	.70	.70
Extras for wide widths—														
Over 6 in. to 9 in. inclusive.....	...	...	...	...	.15	.15	.25	.25	.50	.50	...	...	...	...
Over 9 in. to 12 in. inclusive.....	...	...	...	...	.40	.40	.60	.60	.75	...	...	...	...	...
Over 12 in. to 16 in. inclusive.....	...	...	.25	.50	.60	.75	...	...	...	...	...	...	...	...
Extras for cuttings to lengths of 24 in. and longer—														
3 in. and wider.....	.25	.45	.45	.45	.70	.95	.95	1.20	2.55	2.55	3.50	5.00	...	...
Under 3 in. to 1 in. inclusive.....	.35	.55	.55	.55	.90	1.25	1.25	1.60	3.30	3.30	4.50	6.00	...	...
Under 1 in. to ½ in. inclusive.....	.50	1.00	1.00	1.00	1.50	2.00	2.00	2.50	4.00	4.00	5.25	...	...	...
Extras for cutting to lengths shorter than 24 in. upon application. Boxing or wrapping 25c. per 100 lb. extra. Minimum charge 50c.														

old card set up extras on widths 1 in. and wider and under 1 in. to 1/2 in., inclusive. The new card has three sets of extras based on widths, 3 in. and wider, under 3 in. to 1 in., inclusive, and under 1 in. to 1/2 in. Substantial increases over the old card are shown. The new extra sizes in inches are shown in the table.

Westinghouse Scholarship Awards

The winners of the four Westinghouse War Memorial Scholarships for 1923, are George Earl Doty, Pittsburgh, who will study electrical engineering at Carnegie Institute of Technology; Lawrence B. Biebel of Oakmont, Pa., who will take a course in electrical engineering at the University of Pittsburgh; Paul M. Williams of Wilkinsburg, Pa., who will study electrical engineering at Carnegie Institute of Technology; and Lee P. Doyle of San Francisco, who will go to Ohio State University for a course in electrical engineering.

dates and approved by the scholarship committee. The scholarships are granted for one year only, but they will be continued for the full course provided the scholar maintains the academic and other standards required.

Two classes of scholarships are provided, (A) for sons of employees of the company or its subsidiaries who have been employed for five years or longer; (B), for employees who have been continuously employed for at least two years and who shall not on the Sept. 1, prior to the opening of the school year have exceeded the age of 23.

The annual meeting of the Sheet Metal Contractors' Association of Ohio was held in Cincinnati July 18, 19 and 20. George Dietz, Cincinnati, was reelected president, G. S. Mooney, Columbus, secretary. The convention went on record as favoring a standard code for furnaces in the State of Ohio, and efforts will be made to have this code adopted during the coming year.



## PERSONAL

C. A. Meissner, Pittsburgh, who supervised the construction of the new by-product coke plant for the Koppers Construction Co., which was installed at the plant of the Weirton Steel Co., Weirton, W. Va., has been made superintendent. Casey Evans, Steubenville, Ohio, has been appointed his assistant.

Samuel Lewis president Atlantic Smelting & Refining Works, Inc., 57 Richards Street, Brooklyn, sailed July 10 for Europe.

Joseph J. Komara, formerly works manager of the Wyckoff Drawn Steel Co., Pittsburgh, and previously with the Columbia Steel & Shafting Co., Pittsburgh, now is vice-president and general manager of the Eastern Steel Products Corporation, with a plant at Spring City, Pa., and general offices in the Widener Building, Philadelphia.

G. A. Trube, who returned from France a short time ago on completion of a special industrial mission for an American banking institution, sailed again for France on July 25 to take charge of an engineering construction enterprise in that country. Mail addressed to him in care of the Equitable Trust Co., 23 rue de la Paix, Paris, will be forwarded to him.

William J. Merten, metallurgical engineer, Westinghouse Electric & Mfg. Co., and chairman Pittsburgh chapter, American Society for Steel Treating, has been appointed a member of the committee on heat treatment of carbon steel, National Research Council.

Alexander I. McKay has been made superintendent of the Morgan Mfg. Co., Keene, N. H., screw machine products. He formerly was associated with the New Home Sewing Machine Co., Orange, Mass.

R. C. Jackson, New York, who recently joined the Durant organization, has been made president of the Locomobile Co., Bridgeport, Conn.

A. C. Quere has resigned as assistant sales manager of the Ashtabula Steel Co., Ashtabula, Ohio, and has become affiliated with the sales department of the Cleveland Steel Co., Cleveland. He was formerly connected with the Niles Steel Products Co., Niles, Ohio.

J. B. Haskell of the Mosler Safe Co., Hamilton, Ohio, has accepted the position of chief engineer of the West Virginia Rail Co., Huntington, W. Va., and will take up his new duties Aug. 1.

Charles M. Anderson has resigned as managing director of the Safety Division, Milwaukee Association of Commerce, to accept a similar position at Memphis, Tenn., effective Aug. 15.

Newlin T. Booth has resigned his position as superintendent of the Bethlehem Steel Co., at Steelton, Pa., to operate the Deemer Steel Casting Co., New Castle, Del., of which he has become owner.

George A. Reuff has been appointed general manager, Christy Park Works, National Tube Co., succeeding the late E. C. Jaycox. Mr. Reuff has been connected with the Ellwood Works, Ellwood City, Pa., during the past 10 years as master mechanic and superintendent of the bar mill.

W. C. Reitz, secretary and treasurer Pittsburgh Steel Products Co., recently was elected a director of the Duquesne National Bank, Pittsburgh.

Andrew Telfer, now manager of the city works, National Tube Co., Pittsburgh, which embraces the Continental and Republic works, has assumed the management of the Pennsylvania works in Pittsburgh, of which the late J. W. Latshaw was manager.

F. A. Duttenhofer has been appointed purchasing agent for the Fox Motor Car Co., Philadelphia, succeeding C. H. Landsittel.

M. E. Davis, who has had charge of the New York office of the Vulcan Iron Works, Wilkes-Barre, Pa., for several years, has taken up other work. He is succeeded by Thomas MacLachlan of the home office, who will take charge immediately.

Otto Da Costa Schmidt has been appointed chief engineer of the Thomas Spacing Machine Co., Glenshaw, Pa.

### Personnel Changes at Bethlehem Plants

Changes in the operating personnel of the Coatesville, Maryland and Steelton plants of the Bethlehem Steel Co. include the following promotions following a number of resignations:

#### Coatesville Plant

F. E. Howells appointed assistant general manager succeeding E. A. Hagerman, resigned. Mr. Howells was formerly mechanical engineer at the Steelton plant.

P. F. Dolan appointed superintendent blast furnace department succeeding V. W. Aubel, resigned. Mr. Dolan was formerly assistant superintendent of blast furnaces at the Maryland plant.

Howard Fairweather appointed superintendent flanging department succeeding V. B. Ash, resigned.

#### Maryland Plant

Owen R. Rice appointed assistant superintendent blast furnaces succeeding P. F. Dolan, transferred to Coatesville. Mr. Rice was formerly metallurgical assistant blast furnace department at the Bethlehem plant.

#### Steelton Plant

W. W. Cooper appointed superintendent steel foundry department succeeding Newlin T. Booth, resigned. Mr. Cooper was formerly assistant superintendent of the steel foundry department.

E. R. Howells appointed assistant superintendent steel foundry, formerly metallurgist of the steel foundry department.

George S. Comstock appointed mechanical engineer succeeding F. E. Howells. Mr. Comstock formerly was assistant mechanical engineer.

## OBITUARY

HERBERT F. TOPP of Herbert F. Topp & Co., iron and steel brokers, Cincinnati, died suddenly, following a stroke of apoplexy, just before reaching his residence from his office July 24. Mr. Topp had been in his usual health during the morning, but during the early afternoon complained of pains in his arms and chest. He was driven to his home by one of his employees, but died just as he reached his house. Mr. Topp was 41 years of age and had been connected with the steel and iron business all his life. He was in his younger days an employee of the United States Steel Corporation, later being a salesman with the Dayton Coal & Iron Co., and after severing his connection there, became Cincinnati manager for Crocker Bros. He was admitted to partnership in that firm in 1920, but retired in 1921 to go into business for himself.

IRA S. FOUSE, vice-president and general manager, as well as director of the Allegheny Foundry & Machine Co., Glassmere, Pa., and his brother, John M. Fouse, treasurer Pittsburgh Welding Corporation, Pittsburgh, were drowned while bathing at Bethany Beach, near Baltimore, July 20. One of the brothers got beyond his depth and called for help; the other swam to his rescue and both were carried down. Ira S. Fouse was born in Pittsburgh 39 years ago, and prior to his affiliation with the Allegheny Foundry & Machine Co. was purchasing agent of the Standard Steel Car Co., Butler, Pa. John M. Fouse was 37 years old, a native of Pittsburgh and, besides his connection with the Pittsburgh Welding Corporation, was representative of the Dominion Bridge Co., Montreal. He was a graduate of Lehigh University, class of 1905.

THOMAS E. TUCKER, president Gem City Boiler Co., Dayton, Ohio, died July 19, following an operation for appendicitis.

# Machinery Markets and News of the Works

## MID-SUMMER LULL PREVAILS

### Little Interest by Industrial Companies—Railroads Buying in Small Lots

#### Pennsylvania, Baltimore & Ohio and Norfolk & Western Issue Lists

There has been little activity during the week, the usual mid-summer lull prevailing for the most part in all districts. Inquiries from scattered points continue to be received and some of them are evidently for the purpose of determining costs of contemplated extensions or new shop projects. In Cincinnati, railroad buying in small lots has been fairly good and in New England the buying of small tools is notable. Increased activity in sheet metal working machinery is reported. It is estimated that the machine tool industry as a whole is now operating in the neighborhood of 33 per cent of capacity.

The Pennsylvania Railroad, central region, has issued a list involving 30 tools, for its Pitcairn, Sharpsburg, Youngwood and Jerry shops.

A list of 20 machines including three shapers, two drilling machines, seven engine lathes, a vertical boring mill, a centering machine, two twist drill grinders, two No. 1 grinding and polishing machines, a motor-driven hacksaw and a 1-ton electric hoist, has been issued by the Baltimore & Ohio Railroad for its Glenwood shops.

The Norfolk & Western Railroad in addition to pur-

chasing against its recent list, has asked for quotations on a number of other tools. The Southern Railway is taking bids on about six miscellaneous machines and the Virginian Railway is also in the market. The Union Pacific Railroad is inquiring for a driving-wheel lathe and a drill press.

An inquiry for new or used machinery which includes a 16 to 20-in. engine lathe, a 20-in. drill, a 24-in. shaper, a milling machine and a 12-in. emery grinder, has been put out by the Aeroshade Co., Waukesha, Wis. Scattered inquiry for seven lathes, four shapers, two radial drills and two large pipe machines is reported from Cleveland. A safe company in Hamilton, Ohio, is expected to purchase some shearing machinery this week.

Railroads that bought during the week include the Atchison, Topeka & Santa Fe, which closed for several large tools, said to be hang-overs from its recent large purchase. The Chicago North Western placed orders for two large automatic machines and the Pennsylvania placed an order for a similar machine.

The Paige Automobile Co. purchased a round lot of automatic machines, and the Maxwell Motor Co. took a few tools for its Dayton body plant. A Massachusetts textile machinery maker closed for three lathes, a vertical milling machine and a spline miller. A large Eastern manufacturer is understood to have completed purchases of internal grinders with a final order for 20 machines, bringing the total to 80.

It is understood that all of the 75 tools for the Sharon, Pa., plant of the Westinghouse Electric & Mfg. Co. have been placed.

## New York

NEW YORK, July 24.

**B**UT little activity is evident, the few inquiries now current being for single tools and purchasers evincing no inclination to hurry orders. Dealers in used machinery report a fair degree of activity in some lines, particularly a certain amount of interest in small radial drills and plate shop equipment. One seller of used tools is reported to have booked a fair sized order the past week. Railroad business continues about the most active section of the market, but there is very little noted in this district. The Denver & Rio Grande has purchased a 9-in. wheel lathe from an Eastern manufacturer. The Brooklyn Union Gas Co., Brooklyn, N. Y., has bought an engine lathe and a 53-in. boring mill. A large Eastern manufacturer has completed purchases of internal grinders from the Heald Machine Co., with a final order for 20 machines, bringing the total to 80.

Although sellers who deal largely with the automotive industry report practically no business at present, it is stated that automobile manufacturers are not asking suspension of delivery on tools now under order and further small purchasing is expected in the fall.

C. Brandes, Inc., 237 Lafayette Street, New York, manufacturer of radio headsets and other wireless equipment, has purchased the plant of the Universal Tobacco Machine Co., Newark, N. J., consisting of a two-story building, 100 x 126 ft., and adjoining site, 225 x 240 ft. The new owner will equip the first floor for parts manufacture and assembling. The New York works will be maintained until the second floor is available when all operations will be concentrated at the new location.

A manual training department will be installed in the new three-story and basement high school to be erected at Amsterdam, N. Y., estimated to cost \$450,000, for which bids are being taken on a general contract until Aug. 15. G. L. Lockhart, Inc., 1353 University Avenue, St. Paul, Minn., is architect; Niles & Daly, Amsterdam, are associated architects.

The State Engineering Department, 158 State Street, Albany, N. Y., Dwight B. Ladu, State engineer, will install lathes, drill press, planer, bench tools and other equipment in a new machine shop for the department.

The General Motors Corporation, 224 West Fifty-seventh Street, New York, has formed a subsidiary, the Moraine Products Co., to operate at a portion of its plant at Dayton, Ohio. The new company will manufacture equipment for automobiles of the parent company. In connection with the construction of an addition at its Canadian works at Oshawa, Ont., operated by the General Motors, Ltd., for which plans have been completed, the structure will be one-story, 100 x 600 ft., and will be equipped as an assembling works. It will cost \$150,000 with machinery.

Manual training equipment will be installed in the new two-story high school, 60 x 158 ft., to be erected at Schuylerville, N. Y., estimated to cost \$100,000. Nichols & Gardinier, 46 North Pearl Street, Albany, N. Y., are architects.

The United Refrigeration & Terminals Co., New York, recently organized, has purchased the former brewing plant of the Bernheimer & Schwartz Co., Amsterdam Avenue, between 128th and Lawrence Streets. Immediate possession will be taken and a portion of the structure remodeled for an ice-manufacturing and refrigerating plant, estimated to cost \$150,000. Calvin Tichenor, C. H. Attwater and R. P. Dorland head the new company.

Richard Dudgeon, New York, manufacturer of hydraulic jacks and kindred equipment, has organized the Richard Dudgeon, Inc., capitalized at \$100,000, to take over and expand the present plant at Columbia and Broome Streets. It is headed by C. L. Dudgeon, J. W. Nelson and others.

The Wright Aeronautical Corporation, Paterson, N. J., has leased the building of the Paterson Industrial Develop-



ment Co., totaling 90,000 sq. ft. of floor space, for extensions. It will also occupy a new building now being constructed by the Paterson Industrial company, comprising 12,000 sq. ft. of floor area.

Bids will be received by the Borough Council, Stone Harbor, N. J., until Aug. 6 for pumping equipment and auxiliary machinery for installation in a new plant for the municipal waterworks. Joseph L. Sweigard, 1120 Lincoln Building, Philadelphia, is engineer. Harry M. Simpson is borough clerk.

Fire, July 19, destroyed a portion of the plant and machinery of the Diamond Match Co., near Rahway, N. J., with loss estimated at \$65,000. Headquarters are at 111 Broadway, New York.

Bids will be received by the Borough Council, Pennington, N. J., until Aug. 26 for electrically-operated pumping machinery for installation in a new station for the municipal water department. Remington & Vosbury, 601 Market Street, Camden, N. J., are engineers. Henry L. Laning is borough clerk.

Manual training equipment will be installed in the new three-story junior high school to be erected at Wildwood, N. J., estimated to cost \$110,000, for which bids are being taken on a general contract. A. R. Stackhouse, 1120 Locust Street, Philadelphia, is architect.

The Bart Reflector Co., 124 Belmont Avenue, Bloomfield, N. J., is in the market for a 150 hp. steam engine and boiler, second-hand; oil tank, 10,000 to 20,000 gal. capacity; pressure blower and rotary oil pump, Sturtevant type.

The Borough Council, National Park, N. J., will take bids until Aug. 13 for pumping machinery and auxiliary equipment for a new pumping plant for the municipal waterworks. A bond issue of \$45,000 has been approved. Edward R. Allen is mayor.

The Public Service Electric Co., Public Service Terminal, Newark, will commence the erection of a new one-story power house at 304-12 Norfolk Street, estimated to cost \$80,000.

## Philadelphia

PHILADELPHIA, July 23.

**P**URCHASE has been made by the R. Scheinert Co., 123 North Third Street, Philadelphia, manufacturer of automobile equipment, of the two-story plant of the Lowry Top & Body Co., Gaul and Hagert Streets, for \$80,000. The new owner will use the structure for a new plant.

Electric power equipment, conveying and other machinery will be installed in the new printing plant to be erected by the Philadelphia Inquirer, 1109 Market Street, Philadelphia, estimated to cost \$600,000 with machinery.

The W. L. C. Plumbing Supply Co., Philadelphia, manufacturer of pipe, has acquired the five- and two-story buildings of the Mechling Brothers Mfg. Co., 951-53 North Ninth Street, for a new plant.

Max Levy & Co., Wayne Avenue and Berkley Street, Philadelphia, manufacturer of photo-engraving equipment and supplies, will take bids before the end of the month for a four-story addition, 60 x 100 ft., to cost approximately \$80,000. Louis Levi, 1343 Real Estate Trust Building, is architect.

The American Motor Body Corporation, Philadelphia, operating the Hale & Kilburn Co., Eighteenth and Lehigh Streets, manufacturer of automobile bodies, car seats, etc., is arranging for a bond issue of \$5,000,000, to be used for an expansion program at the local plant and the branch works at Detroit. Charles M. Schwab, head of the Bethlehem Steel Co., has recently purchased a substantial interest in the company.

A one-story machine repair shop will be erected at Hunting Park Avenue and Twenty-eighth Street, by the Tasty Baking Co., 2335 Sedgley Street, Philadelphia, for which a general contract has been awarded to the John N. Gill Construction Co., 112 South Sixteenth Street.

The General Electric Co., Witherspoon Building, Philadelphia, has awarded contract to the White Construction Co., 95 Madison Avenue, New York, for the first unit of its new plant at Fifty-sixth Street and Elmwood Avenue to cost \$250,000.

The Bureau of Water, City Hall, Philadelphia, has been authorized to install electrically-operated pumping machinery for booster service for the Chestnut Hill district, in a station to be built at Germantown and Southampton Avenues. Fred C. Dunlap is chief of the bureau.

The Philadelphia Commercial Museum, Thirty-fourth Street, has received an inquiry from a company at Amsterdam, Holland, for American-made steel tools, scales and scientific instruments; from a company at Barcelona, Spain, for glass-making machinery; from a concern at La Paz,

Bolivia, for agricultural tractors, caterpillar type, and from a company at Melbourne, Australia, for iron clamps, etc.

The Associated Engineers Co., 1001 Diamond Street, Philadelphia, is said to be in the market for a punch press.

The Trenton Auto Radiator Works, Ferry Street, Trenton, N. J., is having plans drawn for a two-story addition. Harry G. Aitken, American Mechanic Building, is architect. Nathan Kramer is head.

The Philadelphia & Reading Railroad Co., Reading Terminal, Philadelphia, is considering the erection of three one-story shops at its repair works, Reading, Pa., estimated to cost \$150,000 with machinery. Otto Jerold is company architect. Work will be commenced on a new storage battery plant and signal tower at the new terminal at Camden, N. J.

The Reading Rubber Co., Kutztown, Pa., manufacturer of automobile tire tubes and kindred products, has leased a building at Fleetwood, and will remodel it for a new plant. The cost is estimated at \$90,000, including equipment. Samuel H. Bell, Reading, is president.

M. S. Kemmerer & Co., Sandy Run, Pa., operating coal properties, are having plans prepared for a new coal breaker to cost approximately \$150,000, including machinery.

The Barry & Zechner Co., Inc., 33 East Fulton Street, Lancaster, Pa., manufacturer of pumping machinery, etc., is having plans drawn for a two-story machine shop, 60 x 100 ft., to cost \$30,000. W. P. Ericman, 422 Woolworth Building, Lancaster, is architect.

The Pennsylvania Coal Co., Dunmore, Pa., is planning to rebuild the machine repair shop at No. 7 Junction, Sebastopol, Pa., destroyed by fire July 19.

Schmid Brothers, Pearl and Lake Streets, Lancaster, Pa., manufacturer of hardware products, etc., and operating a machine shop, are planning the installation of a straight side punch press, arched punch press and other equipment.

Manual training equipment will be installed in the new two-story and basement high school to be erected at Llewellyn, Pa., estimated to cost \$110,000, for which plans are being prepared by Frank Reilly, 112 South Centre Street, Pottsville, Pa., architect.

The Glen Iron Power & Tool Co., Glen Iron, Pa., recently organized with capital of \$500,000, is planning the establishment of a factory to manufacture pipe wrenches, etc. It is also proposed to build a local electric generating plant to furnish service in this section.

The Pennsylvania Railroad Co., Broad Street Station, Philadelphia, will commence the construction of a new icing plant at Altoona, Pa., estimated to cost \$100,000, including equipment.

The building to be erected by the Philadelphia Tapestry Mills, Inc., Philadelphia, is for general construction and not a power house. Contract has been awarded.

## New England

BOSTON, July 23.

**B**OOKINGS by machine tool dealers show little, if any, expansion. Three 14-in. lathes, a vertical milling machine and a key seater, a 4-in. spline milling machine, four small presses, a 20-in. back geared drill, and a used sensitive drill are representative sales the past week. Dealers report considerable prospective activity, but difficulty in closing sales. Prices apparently are as firm as heretofore. A Massachusetts maker of shapers has advanced some numbers about 10 per cent.

Increased activity is noted in the sheet metal-working machinery market. A Wakefield furniture manufacturer and a Taunton stove maker have been fairly active buyers. Small tools and machinery parts are in exceptionally good demand for this time of the year. The city of Boston has accepted bids for furnishing and installing equipment in the Austin School, Paris Street, East Boston.

In the crane market interest centers largely in an inquiry for a fairly large crane from a Massachusetts forging concern and a Worcester steel mill's requirements. The Hunt-Spiller Mfg. Corporation, South Boston, gun metal castings, is reported to have purchased five small Whiting cranes having long spans.

The Marlboro Wire Goods Co., Marlboro, Mass., is taking bids for a one-story, 80 x 150 ft., manufacturing plant. Rector Moineau is manager.

The Central Oil & Gas Stove Co., Gardner, Mass., has awarded contract for a one-story, 60 x 116 ft., enameling plant.

## The Crane Market

ACTIVITY in purchases and new inquiries for both overhead and locomotive cranes is less than for several months. Much of the present quietness is attributed by builders of cranes to the usual dullness felt at this season. No new inquiries of any size are reported. Still pending are the two 15-ton overhead traveling cranes for the Railway Steel Spring Co., 30 Church Street, New York; the 10-ton overhead crane for the Third Avenue Railway Co., New York, with two drums for lifting cars; and the four 20-ton locomotive cranes for the New York Central & Hudson River Railroad, New York. The 25-ton overhead traveling crane for the Brooklyn Edison Co., Brooklyn, N. Y., is reported to have been placed this week. Several inquiries for locomotive cranes are still pending.

Among recent purchases are:

Sullivan Machine Co., Claremont, N. H., two 5-ton, 37-ft. 7-in. span, overhead traveling cranes from the Pawling & Harnischfeger Co.

Dwight P. Robinson & Co., New York, a 75-ton trolley for the Cheswick Power Co., Springdale, Pa., from an unnamed builder.

General Electric Co., Schenectady, N. Y., a 20-ton, 42-ft. span, hand power crane for the National Railways of Mexico, from the Whiting Corporation.

Rivadavia Oil Co., Buenos Aires, Argentina, an oil burn-

ing locomotive crane for use in the Argentine oil fields, from the Orten & Steinbrenner Co.

U. G. I. Contracting Co., Philadelphia, a 20-ton, used Browning locomotive crane from R. A. Parkinson, dealer, Philadelphia.

Abbott, Merkt & Co., New York, engineers, two small hand power cranes for the Megarge Paper Mill, Tulleytown, Pa., from Alfred Box & Co.

Central Aguirre Co., sugar, 129 Front Street, New York, a small 3-motor electric traveling crane from an unnamed builder.

Phoenix Utility Co., 71 Broadway, New York, a 15-ton, 21-ft. span electric traveling crane from the Northern Engineering Works.

Dodge Brothers Motor Co., Detroit, Mich., a 15-ton, 10-ft. span, 4-motor electric traveling crane from the Northern Engineering Works.

Hart Brothers Machine Co., Clarksburg, W. Va., a 5-ton, 26-ft. span, 3-motor electric traveling crane from the Northern Engineering Works.

Southwark Foundry & Machine Co., Philadelphia, a 5-ton, 3-motor, floor-controlled overhead crane from Maris Brothers.

Boston & Maine Railroad Co., for shops at Billerica, Mass., a 7½-ton, cage-controlled electric hoist from Maris Brothers.

The Norma Co. of America, ball bearings, has purchased 18 acres in Glenbrook, Conn., on which it is proposed to erect a branch plant. The first unit will be 120 x 400 ft., work on which will commence about the middle of August.

The Walsh Steam Boiler Works, Holyoke, Mass., has purchased land now occupied in Appleton and Mechanic Streets and several parcels adjoining, on which it is proposed to make improvements.

The Moore Drop Forge Co., Springfield, Mass., will erect a one-story, 56 x 81 ft., press unit, and another of approximately the same proportions for a blacksmith department.

Work will commence on a new machine shop and engine house at the locomotive repair shops of the Central Vermont Railway Co., St. Albans, Vt., to cost \$80,000.

The Progressive Mfg. Co., Torrington, Conn., manufacturer of bolts, studs, etc., has awarded general contract to the Torrington Building Co. for an addition, estimated to cost \$50,000 with equipment. W. E. Hunt, Torrington, is architect.

The Common Council, Fitchburg, Mass., is having plans prepared for a two-story machine shop and automobile service building, for municipal cars, estimated to cost \$100,000. Herbert Foster, 72 Fox Street, is architect.

Fire, July 14, destroyed a portion of the plant of the Thinsheet Metals Co., Waterbury, Conn., with loss estimated at \$25,000. It is planned to rebuild.

The American Steel & Wire Co., Grove Street, Worcester, Mass., has plans under way for a one-story addition, 55 x 100 ft., with extension, 20 x 30 ft., estimated to cost about \$145,000. It will be equipped for annealing.

Manual training equipment will be installed in the new high school to be erected at Newburyport, Mass., estimated to cost \$250,000. Edwin S. Dodge, 15 Exchange Street, and McLaughlin & Burr, 88 Tremont Street, both of Boston, are associated architects.

The Tileston & Hollingsworth Co., 49 Federal Street, Boston, manufacturer of paper products, has plans for two new buildings at 893 River Street, to be equipped as a machine department and finishing department, respectively, estimated to cost \$75,000.

The Montaup Electric Co., Fall River, Mass., has applied for permission to issue capital stock for \$600,000, the proceeds to be used for the acquisition of light and power properties and for extensions in plants.

The C. Locash Machine Shop, Stark Avenue, Wakefield, Mass., is planning the installation of a machine table saw, motor-driven.

The Yale & Towne Mfg. Co., Stamford, Conn., locks, lifting equipment, etc., has purchased the 15 x 250-ft. property adjoining, formerly occupied by the Kroeger Piano Co.

The Town Council, Vernon, Conn., is planning to build a two-story high school in the western district, estimated to cost \$300,000. It will contain hand tool equipment for light tinware and plumbing work.

## Baltimore

BALTIMORE, July 23.

WORK has been commenced by the Baltimore & Ohio Railroad Co., Baltimore, on rebuilding its locomotive shops on Pratt Street, destroyed by fire last year. The structures will consist of a three-story shop and office to cost \$105,000; and a one-story works, 66 x 200 ft., estimated to cost \$100,000, for machine shop and other service. The general contract has been let to Frainie Brothers & Haigley, 18 Clay Street.

The S. B. Sexton Stove & Mfg. Co., Baltimore, has been organized with a capital of \$150,000 and 2000 shares of stock, no par value, to take over and expand the business of the company of the same name at 501 West Conway Street. The new organization will continue the manufacture of stoves, furnaces and ranges. It is headed by William D. Macmillan, Harold Tschudi and Matthew Gault.

Bids will be received by the Bureau of Yards and Docks, Navy Department, Washington, until Aug. 15, for one electric traveling bridge crane, for the Puget Sound Navy Yard, specification 4861, until Sept. 12, for bins for the coaling plant at the United States Navy Yard, Pearl Harbor, H. T., specification 4772.

The Caswell Training School, Kinston, N. C., is taking bids until July 31 for electrical and other equipment for installation in its power department, including engines, boilers, electric generator and auxiliary machinery, and switchboard, with instruments. H. A. Underwood, 916 Commercial Bank Building, Raleigh, N. C., is architect.

The Dowling Mfg. Co., 54 Bay Street, East, Savannah, Ga., is in the market for electric motors, 1 and ½ hp.

The Colliers Motor Corporation, Dublin, Va., is planning the establishment of new works to manufacture automobile equipment, including a department for the manufacture of drop forgings. Two hammers and auxiliary equipment will be installed, to develop an output of about 2 tons per day. S. B. Collier is president.

The Winchester Automotive Machine Works, Winchester, Va., is planning the installation of a drill press, milling machine and other equipment.

The Kenedy Memorial Home, R. F. D. No. 3, Kinston, N. C., is planning the installation of electrically operated pumping machinery for a new waterworks system, to include a 60-ft. steel tower, with 15,000 to 20,000-gal. steel tank. Theodore B. Davis is superintendent in charge.

Fire, July 10, destroyed a portion of the automobile machine works of the Thompson-Sexton Mfg. Co., Burlington, N. C., with loss estimated at \$45,000 including equipment. It is planned to rebuild. W. N. Thompson, Burlington, is head.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until Aug. 7 for miscellaneous wire rope for Eastern and Western yards, schedule 1118.



Electric power equipment, conveyors and other machinery will be installed in the new six-story printing plant, 60 x 150 ft., to be erected by the Baltimore News and American, Baltimore, estimated to cost \$650,000. G. R. Callis, Jr., American Building, is architect.

The Norfolk Sugar Refining Co., Norfolk, Va., will break ground within 60 to 90 days for its proposed refinery, held in abeyance for a number of months. The plant will include a power house and machine shop and is estimated to cost \$3,000,000.

D. C. Elphinstone, 408 Continental Building, Baltimore, machinery dealer, has inquiries out for a 25-ton standard gage, saddle tank locomotive, Vulcan type, second-hand.

The Asheville Supply & Foundry Co., Asheville, N. C., is planning for extensions and improvements in its plant to cost \$20,000.

A manual training department will be installed in the high school to be erected at Ingleside, Ga., estimated to cost \$100,000. R. E. Carroll, superintendent of DeKalb County Schools, Decatur, Ga., is in charge.

The Oakland Motor Car Co., Pontiac, Mich., has plans for a factory branch at Atlanta, Ga., to occupy an entire block, estimated to cost \$200,000. A machine shop and parts department will be installed.

Newlin T. Booth, Steelton, Pa., and associates, are concluding negotiations for the purchase of the plant of the Deemer Steel Casting Co., Newcastle, Del., for about \$750,000. A company will be organized to operate the property and will make extensions.

Manual training equipment will be installed in the high school to be erected at Hickory, N. C., for which a special election to vote bonds for \$225,000 has been called on July 31. C. Gadsden Sayre, Raleigh, N. C., is architect.

The Columbia Railway & Navigation Co., Columbia, S. C., has been granted a preliminary permit for the construction of a hydroelectric power plant on the Santee River, near Ferguson, S. C., about 40 miles from Charleston. The initial station will develop 125,000 hp. and will cost \$1,500,000.

The Hercules Powder Co., du Pont Building, Wilmington, Del., is in the market for a number of digestors, 8 ft. in diameter and 30 ft. high, sufficient for 100-lb. working pressure, new or second-hand.

An ice-manufacturing plant with daily capacity of 80 tons and cold storage plant will be installed in the new eight-story food products warehouse to be erected at Wilmington, Del., by the Holstein-Harvey Terminal, Inc., capitalized at \$2,000,000. A site has been selected at French and Water Streets. The structure will be 80 x 120 ft., and will cost in excess of \$500,000, with equipment. Morton Harvey is president and Perlee C. Sisler, first vice-president.

The Board of City Commissioners, Raleigh, N. C., will receive bids until Aug. 1 for electrically operated pumping machinery and other equipment to increase the capacity of the water plant to 5,000,000 gal. The cost is estimated at \$350,000. C. C. Page, Raleigh, is company engineer.

The Orangeburg Foundry Co., Orangeburg, S. C., is perfecting plans for rebuilding the portion of its foundry and shops recently destroyed by fire.

The Consolidated Gas, Electric Light & Power Co., Baltimore, will build a one-story brick and concrete addition to its plant at 700-24 West Pratt Street, at a cost of \$14,500. It will also build an addition to its battery station at 10-12 McClellan Street, to cost \$31,000.

The United States Heading Co., Durham, N. C., recently organized with a capital of \$200,000, has taken over the local crate-manufacturing plant of the Lunsford-Losson Co. Plans are under way for additions and the installation of considerable new machinery and power equipment. Nathan Lunsford is president, and T. B. Christian, secretary.

Electric and steam power equipment will be installed in the new laundry, 147 x 250 ft., to be erected at St. Mary's and Eutaw Streets, Baltimore, by Archer's Laundry, Howard and Mulberry Streets, estimated to cost \$200,000 with machinery.

The Everett Brothers Motor Co., Athens, Ga., is arranging for the establishment of a machine shop and foundry. A pattern shop will also be equipped. A list of machinery will soon be arranged and inquiries asked.

The Domestic Stoker Co., New York, has been incorporated under Delaware laws with capital stock of \$50,000 to manufacture stokers and kindred equipment. The company states that plans are unformed, but that it is practically certain that a plant will not be built and that a manufacturing contract will be closed. Negotiations are in progress along that line. The company may be addressed through F. J. Nash, 7 Dey Street, New York.

## Pittsburgh

PITTSBURGH, July 23.

THE most interesting development of the week in machine tools has been the issuance of a list by the Pennsylvania Railroad, Central Region, involving about 30 tools for the Pitcairn, Sharpsburg, Youngwood, and Jerry shops.

Generally, business is seasonably dull with a tendency to defer purchases until the latter part of the year. It is believed that if buying tapers off purchases can be made to better advantage in the fall than at present.

Business over the first half of the year was satisfactory, but it is pointed out that most of it was in the replacement of worn-out equipment, and that there was little new buying outside of that for the Gary plant of the National Tube Co., and the transformer plant of the Westinghouse Electric & Mfg. Co., Sharon, Pa. It is understood that all of the 75 tools for the latter plant now have been placed.

The crane market has not shown much life the past week, and builders of rolling mill equipment have continued to find business very moderate. The tendency to postpone purchases of power equipment also is marked, although the Pittsburgh & West Virginia Railway Co. recently bought from the General Electric Co. three 750-kw. bleeder type, three-phase, 60-cycle, 2300 volt, turbo-generators with exciters for its Pittsburgh shop, while the Carnegie Steel Co. has placed an order with the Allis-Chalmers Mfg. Co., for one 600-kw. motor generator set with control panels for the Schoen Steel Wheel Works, McKees Rocks, Pa.

The Dravo Construction Co., Pittsburgh, is making plans for a new structural shop, 75 x 275 ft.; the Acheson Mfg. Co., Rankin, Pa., is planning on a shop, 100 x 200 ft. and Lee C. Moore & Co., Pittsburgh, contemplate a structural shop on Neville Island, Pittsburgh.

Bids will be received by the United States Engineer Office, Pittsburgh, until July 30, for one belt conveyor for sand and gravel service, capacity 220 tons per hr., equipped with head and tail pulleys, tighteners, troughing rolls, carriers, etc.; also, for one continuous bucket elevator, circular 559.

Charles R. Geisler, Ferguson Building, Pittsburgh, architect, is preparing plans for a new one-story and basement factory on Craig Street, to be equipped for metal-working, radiator repairs, etc. The owner's name is temporarily withheld.

Fire, July 13, destroyed the conveyor system and other equipment at the plant of the Marshall Coal Co., Mount Clare, W. Va., with loss estimated at \$40,000. It will be rebuilt.

The Vulcan Refining Co., Coraopolis, Pa., is perfecting plans for the rebuilding of its one-story oil refinery at Third Avenue and Kendall Street, 130 x 190 ft., recently destroyed by fire. J. N. McAllister is in charge.

Frank H. Robinson, Behan Street, Pittsburgh, manufacturer of clay-working machinery, is forming a new company under the name of Frank H. Robinson, Inc., to take over and expand the present plant and business. A State charter has been granted. The new company will manufacture industrial railroad equipment, mechanical devices and appliances, etc., and clay-working apparatus. A. S. Fairley and W. L. Schleich are interested.

The Pretz-Moon Tube Co., Twenty-third and Sedgley Streets, Philadelphia, operating a plant at East Butler, Pa., has closed negotiations with the Corona Cord Tire Co., Butler, for the purchase of its plant and adjoining property of 4½ acres, at East Butler, for \$75,000. The new owner will remodel the plant, installing machinery for the manufacture of small pipe.

The Eureka Pipe Line Co., Fairmont, W. Va., is planning to rebuild the portion of its oil works at Downs, recently destroyed by fire, with loss estimated at \$70,000 including equipment.

The Pittsburgh Railways Co., 435 Sixth Avenue, Pittsburgh, will purchase new electric motors, a grading shovel and other equipment.

Manual training equipment will be installed in the new two-story and basement junior high school to be erected at Bradford, Pa., estimated to cost \$280,000. Lowry, Green & Co., 22 Market Street, Harrisburg, Pa., are architects.

The West Penn Railways Co., West Penn Building, Pittsburgh, affiliated with the West Penn Co., power utilities, has plans for a new power house in the Kingston section, Latrobe, Pa., to cost in excess of \$500,000 including equipment.

Manual training equipment will be installed in the new high school to be erected at Buckhannon, W. Va., estimated to cost \$250,000, for which an architect will soon be selected. The School Board, W. C. Hinkle, is in charge.

The United States Cast Iron Pipe & Foundry Co., Burlington, N. J., with office at 71 Broadway, New York, has awarded contract to the Austin Co., Cleveland, for a one-story foundry at Scottsdale, Pa., 105 x 260 ft., estimated to cost \$60,000.

The Clarksburg Automobile Co., Clarksburg, W. Va., has tentative plans for a three-story and basement service and repair building, 75 x 100 ft., estimated to cost \$75,000. Machine tools, bench tools and other equipment will be installed. F. D. McEnteer, Clarksburg, is architect.

Manual training equipment will be installed in the new three-story and basement high school to be erected at Welch, W. Va., to replace a structure destroyed by fire. It will cost about \$150,000. Alexander B. Mahood, L. & G. Building, Bluefield, W. Va., is architect.

The Maxton Coal Co., Morrisdale, Pa., recently organized, is planning the installation of electrical and other equipment on properties lately acquired between Hawk Run and Morrisdale, totaling 12 acres. C. B. Maxwell, Morrisdale Coal Co., heads the new organization.

The Hutton-Beale Coal Co., Fairmont, W. Va., recently formed with a capital of \$500,000, has plans for the installation of electric power and other equipment on local properties. Ernest Hutton and W. N. Beale, Fairmont, head the company.

## Cleveland

CLEVELAND, July 23.

THE local machinery market is experiencing a mid-summer lull, both orders and inquiries having fallen off during the week. Some business continues to come from Detroit automobile manufacturers, largely for special or automatic machines. The Paige Automobile Co. has purchased a round lot of automatic machinery for its new Jewett plant. The Chicago & North Western Railroad placed orders for two large automatic machines and the Pennsylvania placed an order for a similar machine for production work on locomotive parts. A northern Ohio industrial company placed an order for six machines with a Cleveland dealer. One local dealer reports scattered pending inquiries for seven lathes, four shapers, two radial drills and two large pipe machines.

The Marion Steel Body Co., Marion, Ohio, has been incorporated with a capital stock of \$50,000 to manufacture steel bodies for trucks, steel grave vaults and other pressed steel products. It recently purchased the plant of the Marion Metallic Vault Co. E. H. Fishmer is president and Thomas H. Clark, secretary and treasurer.

The A. C. Williams Co., Ravenna, Ohio, will shortly commence the erection of extensions to its plant.

The Aetna Rubber Co., 815 East Seventy-ninth Street, Cleveland, will build a \$30,000 addition.

A. L. Post & Son will build a new factory at Earlville near Kent, Ohio.

The Buckeye Traction Ditch Co., Findlay, Ohio, has acquired a \$25,000 interest in the Visible Pump Co., Findlay, and the offices of the latter company will be moved to the plant of the Ditcher company, which has been making pumps for the Visible Pump Co. The present personnel of the two organizations will be maintained. Plans are under way for increasing production.

The Northern-Ohio Traction & Light Co., Akron, Ohio, has placed contracts for the erection of a new power house.

The Favorite Stove & Range Co., Piqua, Ohio, will build an enameling plant 43 x 68 ft.

## Buffalo

BUFFALO, July 23.

PLANS are nearing completion for the erection of a one-story addition to the plant of the Buffalo Bolt Co., North Tonawanda, N. Y., estimated to cost \$25,000.

The Palmetto Tool Co., 308 Falconer Street, Jamestown, N. Y., is perfecting plans for the erection of a new one-story branch factory at Celeron, N. Y.

The Automatic Transportation Co., Inc., Buffalo, recently organized with a capital of \$2,000,000, will succeed to the plant and business of the company of the same name at 2935 Main Street, and will expand the business for the manufacture of industrial storage battery trucks, tractors

and parts. The new organization is headed by W. C. Carr, W. L. Kleindinst and J. H. Prescott.

The Jamestown Malleable Products Co., Tiffany Avenue, Jamestown, N. Y., has awarded a general contract to the C. Haas Co., Tenth and Monroe Streets, for a one-story foundry, 50 x 200 ft., to cost approximately \$50,000.

Manual training equipment will be installed in the new high school to be erected at Kenmore, N. Y., estimated to cost \$100,000, for which revised plans have been prepared.

The Orwell Garage & Machine Co., Orwell, N. Y., is planning the installation of a bench milling machine, portable electric drill and other equipment.

The Harrison Radiator Corporation, Lockport, N. Y., has secured permission to close a block on Elm Street, the site to be used for the erection of an addition, for which plans will be prepared at once.

The Mica Co. of Canada, Ltd., Hull, Que., has acquired the property of the Diamond Creamery Co., Massena, N. Y., and will remodel the structure for branch plant. The work will cost about \$50,000, with equipment.

The Canandaigua Cold Storage Co., Inc., Canandaigua, N. Y., recently organized with a capital of \$200,000, plans the installation and operation of a cold storage plant, to cost \$85,000 with equipment. J. H. Hutchison, Pittsford, N. Y., heads the company.

The Moreau Mfg. Co., Glens Falls, N. Y., will commence the construction of a new hydroelectric generating plant on Sherman Island, to cost close to \$1,000,000 with machinery and transmission system.

A refrigerating plant will be installed by the Department of Parks and Public Buildings, Buffalo, in the new municipal market building to be erected on Elk Street. John H. Meahl is commissioner in charge.

The St. Lawrence Transmission Co., Potsdam, N. Y., will commence the construction of a hydroelectric power plant on the Oswegatchie River, near Heuvelton, N. Y.

The Power Corporation of New York, Light and Power Building, Watertown, N. Y., has acquired property on the Beaver River, and has at this time plans for a new hydroelectric generating station, estimated to cost \$250,000, including power transmission system. W. P. McCreager, Northern New York Trust Building, Watertown, is chief engineer.

The Rochester Industries, Inc., St. Paul Street, Rochester, N. Y., is planning for the establishment of a factory to manufacture portable typewriters and parts.

## Cincinnati

CINCINNATI, July 23.

THE machine tool industry as a whole is reported to be operating at approximately 33 per cent of capacity. Orders the past week were in fair volume and inquiries continue from widely scattered points. Railroad buying in small lots has been fairly good, and some of the larger manufacturers of electrical equipment have also been fair buyers. The automobile industry continues to place orders in moderate volume.

While no heavy lists have come out, railroad companies are coming into the market for tools. The Pennsylvania has issued a list for various shops and the Norfolk & Western, in addition to purchasing against its recent list, has asked for quotations on a number of additional tools. The Southern Railway is taking bids on about six miscellaneous machines, and the Virginian Railway is also in the market. The Mosler Safe Co., Hamilton, is expected to purchase some shearing machinery this week, and the Herring-Hall-Marvin Safe Co. is buying right along. The Maxwell Motor Co. has purchased a few tools for its Dayton body plant. The General Electric Co. has purchased a number of sheet metal working machines.

The Baltimore & Ohio Railroad has issued the following list for its Glenwood shops:

- One 32-in. shaper.
- One 36-in. upright drilling machine.
- One 44-in. vertical boring mill.
- Three 24 in. x 12 ft. engine lathes.
- One 12-in. centering machine.
- Two 5-in. twist drill grinders.
- One electric 1-ton hoist.
- One motor-driven hack saw.
- One 20-in. drill press.



Two 36 in. x 18 ft. motor driven engine lathes.  
One 24-in. shaper.  
One 28-in. shaper.  
Two 20 in. x 10 ft. engine lathes.  
Two No. 1 grinding and polishing machines.

The J. & F. Schroth Packing Co., Cincinnati, will erect a 5-story manufacturing plant at Township and Massachusetts Avenues in which some mechanical equipment will be installed. Tietig & Lee, Fourth National Bank Building, Cincinnati, are architects.

The Shartle Brothers Machine Co., Middletown, Ohio, paper mill machinery manufacturer, has purchased the plant of the Willard Middletown Machine Co., for expansion.

The Studebaker-Wulff Rubber Co., Marion, Ohio, has purchased at receiver's sale the plant of the Liberty Tire Co., Carey, Ohio. The new owners will continue the manufacture of automobile tires.

The Auld Mfg. Co., Columbus, Ohio, has been organized with a capitalization of \$225,000 to take over the emblem and jewelry division of the D. L. Auld Co. The plant will be at 225 North Fourth Street. The D. L. Auld Co., is installing machinery in its plant on Fifth Avenue for the manufacture of inside hardware for automobiles, including door handles, dash accessories, etc.

The Leidecker Tool Co., Marietta, Ohio, manufacturer of oil well tools, has been incorporated with a capitalization of \$1,000,000. It was formerly a West Virginia corporation and the change was made to bring the company under Ohio laws. It operates a plant at Westview.

The Patterson Tool & Supply Co., Dayton, Ohio, is inquiring for a No. 2 Barber-Coleman hobber.

## Detroit

DETROIT, July 23.

**T**HE Gagnier Stereotype Foundry, 525 Howard Street, Detroit, will commence the erection of a new one-story foundry on McKinstry Street, to cost \$20,000.

The Detroit Lubricator, 5938 Trumbull Avenue, Detroit, has awarded contract to the A. A. Albrecht Co., 1130 Penobscot Building, for a four-story addition, 120 x 140 ft., to cost \$75,000 with equipment.

J. G. Kastler & Co., 524 Detroit Savings Bank Building, Detroit, architect, has plans for a new two-story and basement ice and refrigerating plant, 75 x 90 ft., the owner's name to be announced later.

The Great Western Smelting & Refining Co., 5202 Lorraine Avenue, Detroit, has plans for a new two-story foundry, 100 x 200 ft., to cost \$50,000 with equipment. Albert Kahn, 1000 Marquette Building, is architect.

The Marine Rubber Corporation, Sparta, Mich., manufacturer of automobile tires, has tentative plans for new works at Holland, Mich., and will remove to the new location.

The Wolverine Power Co., care of Holland, Ackerman & Holland, Ann Arbor, Mich., engineers, is perfecting plans for four new hydroelectric power plants on the Tittabawassee and Tobacco Rivers, Midland and Gladwin Counties. The initial installation will aggregate about 15,000 hp., which will be utilized by the Consumers Power Co., Jackson, Mich., under contract. The Consumers company will build a power substation near the Midland-Gladwin County line. The engineers noted will prepare plans for the project and will call for bids in the near future. It is estimated to cost \$750,000. Frank I. Nixon, Edenville, Mich., is president, and William C. Manchester, Detroit, vice-president.

The Michigan Body Corporation, Alma, Mich., is being organized with a capital of \$200,000 to take over the property of the Chanticleer Coach Co., occupying the building of the Maxwell Mfg. Co., Alma. The new company has purchased the plant of the Bollstrom Motor Co., St. Louis, Mich., and will establish works for the manufacture of automobile bodies and special motor bus bodies, removing the business of the Chanticleer company and installing additional equipment.

## Chicago

CHICAGO, July 23.

**A**SIDE from a small amount of railroad buying, there is very little activity in the local machine tool market. The Union Pacific Railroad has issued an inquiry for a driving wheel lathe and a wheel press. The Atchison, Topeka & Santa Fe has closed within the past few days for several large tools, which are hang-overs from its recent large purchases. Industrial companies are showing very little interest in machine tools and the market as a whole is as dull as that of last month.

The Aeroshade Co., Waukesha, Wis., has issued an inquiry for the following new or second hand tools: One 16 to 20-in. engine lathe, 8 to 10-ft. bed; one 20-in. drill; one 24-in. universal shaper; one milling machine; one 12-in. emery grinder.

The Bull Dog Motor Truck Co. has purchased a two-story brick plant, 60 x 140 ft., at Galena, Ill., for the manufacture of four-wheel chain drive motor trucks. It expects to be in the market shortly for a drilling machine, lathe, tool grinder and a milling machine, and possibly some smaller machines. Officers are J. H. Pifer, president; B. J. Patrick, vice-president; and A. P. Lord, secretary-treasurer.

The Sterling Devices Mfg. Co., recently incorporated with \$2,500 capital stock to manufacture talking machine tone arms and radio head-phones, has leased space at 412 Orleans Street, Chicago, and has a factory at 345 West Austin Avenue. Officers of the company are Frederick Keller, president and treasurer; Elizabeth Fitzgerald, secretary; and H. Soffran, vice-president.

The Scott & Harsted Mfg. Co., was recently incorporated to manufacture polishing machines, special machinery, drapery hardware. Its plant is at 1610 West Augusta Street, Chicago. Walter H. Scott, John Shimel and M. Boe are officers of the company.

The Aurora, Elgin & Chicago Railroad has completed extensions to its shops at Wheaton, Ill., at a cost of \$75,000. The additions increase the capacity of the old car shops 50 per cent and embody new carpenter, blacksmith and paint shops. The new building is 59 x 220 ft. of brick and steel. Tracks running into the buildings allow repairs to be made on the cars direct.

The Almira Iron Works, Inc., structural and ornamental iron, has removed its shop to 4020 Schubert Avenue, Chicago, where it has enlarged facilities.

The Nelson-Ersland Mfg. Co., 3122 West North Avenue, Chicago, has engaged in the manufacture of a new children's velocipede. A building at 1610 North Troy Street has been leased, but larger quarters will be sought soon. The company has purchased most of its equipment, but will soon be in the market for a power punch press and possibly additional machine shop equipment later. The officers are J. H. Nelson, president; Louis Ersland, vice-president, and Neil Chesebro, secretary-treasurer.

N. A. Strand & Co., manufacturers of flexible shafts and equipment, are occupying a new plant at Lincoln and Argyle Streets, Chicago. The new building is 90 x 100 ft., two floors and basement, and increases the company's floor space from 6000 to 18,000 sq. ft. The plant is fully equipped.

The Twin Branch Power Co., a subsidiary of the American Gas & Electric Co., New York, has let contract for a large electric power plant at South Bend, Ind.

The Champion Rivet Co., Hammond, Ind., has in process extensions which will double the capacity of its cold rivet department.

The Chicago Steel & Wire Co., Chicago, has purchased land, 193 x 300 ft., on Torrence Avenue, near 103rd Street, as a site for an addition to cost approximately \$500,000. Plans are being prepared by L. G. Hallberg & Co., architects.

The American Car & Foundry Co. has bought a plot 240 x 250 ft., on Paulina Street, near Blue Island Avenue, for future expansion.

The Michelman Steel Construction Co., Quincy, Ill., has increased its capital stock from \$50,000 to \$150,000 to provide additional capital for increasing the capacity of its plant. The company expects to specialize in steel building fabrication, but will also do some boiler and tank work.

The Hays Brass & Aluminum Foundry Co., Michigan City, Ind., will soon complete a brass and aluminum foundry in that city. E. G. Orcutt of Laporte, Ind., is president and general manager, and Joseph W. Hays, Michigan City, is secretary.

The Consolidated Purchasing Agency, Railway Exchange Building, Chicago, is in the market for three or four used General Electric gas-electric motor cars.

Durant Motors, Inc., Lansing, Mich., has let contracts for a new warehouse, 80 x 560 ft., a two-story addition, 100 x 200 ft., to its No. 4 manufacturing building, and the company will also buy sufficient new equipment to double the capacity of its power plant. The present schedule of the Durant plant at Lansing calls for the production of 100 Durant cars and 300 Star cars per day. The additions to be built are part of a plan to bring the production up to 550 cars per day by Jan. 1.

Lightning, followed by fire, destroyed the Riverview Foundry, Silver Lake, Wis.

The Chicago & Alton Railroad Co., 179 West Jackson Boulevard, Chicago, has plans for a new engine house

and repair shops at Ridgeley, Ill., to cost \$700,000 with machinery. H. T. Douglass is company architect.

The manual training department will be installed in the three-story and basement high school to be erected at Marion, Iowa, estimated to cost \$150,000. W. J. Brown, 201 American Trust Building, Cedar Rapids, Iowa, is architect.

The S. W. Hamilton Mfg. Co., 152nd Street, Harvey, Ill., manufacturer of hardware products, is taking bids on a general contract for a one-story addition, 70 x 90 ft., estimated to cost \$65,000. Henry Raeder, 20 West Jackson Boulevard, Chicago, is architect.

The Chicago Signal Co., 312-18 South Green Street, Chicago, is planning the installation of a Universal milling machine.

The Stewart-Warner Speedometer Corporation, 1828 Diversey Parkway, Chicago, has commenced excavations for its six-story and basement addition, 150 x 200 ft., estimated to cost \$600,000 including equipment. L. G. Hallberg, 116 South Michigan Avenue, is architect.

The Producers' & Refiners' Corporation, California Building, Denver, Colo., is perfecting plans for a new gasoline refinery in the Salt Creek field, near Casper, Wyo., estimated to cost \$2,000,000. A machine shop will also be erected.

The Common Council, Pender, Neb., will soon commence the erection of a new municipal ice-manufacturing plant.

The Hampton Brick & Tile Co., Hampton, Iowa, is considering plans for the erection of a new one-story and basement works to manufacture tile products, estimated to cost \$80,000 with machinery. C. F. Osborn is president.

The Illinois Power & Light Corporation, Venice, Ill., is perfecting plans for a new power house to cost \$1,000,000, with machinery and transmission system.

The State Sanitarium, Oakdale, Iowa, will commence extensions and improvements in its power house to cost about \$20,000. H. F. Liebbe, State House, Des Moines, Iowa, is State architect.

Manual training equipment will be installed in the two-story and basement central high school to be erected at Grand Island, Neb., estimated to cost \$350,000. Kirschke & Crocker, Ryan Building, are architects.

## Indiana

INDIANAPOLIS, July 23.

**S**MALL, ARNOLD & CO., INC., Indianapolis, recently organized with a capital of \$100,000, is perfecting plans for the operation of works at Delaware and McCarty Streets, to manufacture shock absorbers. William Small, formerly president William Small Co., manufacturer of the Monroe automobile, heads the new company.

The Cumberland Hydro-Electric Power Co., Indianapolis, has applied for permission to construct three hydroelectric generating plants in the vicinity of Burnside, Ky., two on the main Cumberland River, and the other on the south fork of the same stream. The stations will cost in excess of \$800,000, with machinery and transmission systems.

The Chesapeake & Ohio Railroad Co., Richmond, Va., has tentative plans for a new engine house and repair shop at Peru, Ind. C. W. Johns is chief engineer.

The Indiana Board & Fiber Co., Vincennes, Ind., has preliminary plans for a new pulp mill at Memphis, Tenn., estimated to cost \$500,000 with machinery.

The Interstate Public Service Co., Columbus, Ind., has secured permission to issue stock for \$350,000, a portion of the proceeds to be used for extensions.

The Universal Portland Cement Co., Buffington, Ind., will install a mechanical dust precipitation system at its local mills to cost about \$500,000. Headquarters of the company are at 210 South La Salle Street, Chicago.

A one-story power house will be built at the Concordia College, Fort Wayne, Ind. J. M. Riedel, 305 Noll Building, is architect.

Manual training equipment will be installed in the new three-story high school to be erected at Kingsbury, Ind., estimated to cost \$80,000. A. Steigley, 2546 East Seventy-third Street, is architect.

The Merchants Heat & Light Co., Indianapolis, will issue bonds for \$95,000 and stock for \$148,000, a portion of the proceeds to be used for extensions and improvements.

The Perry Appliance Co., Inc., Perry, Okla., has been organized to manufacture mechanical appliances. Contract has been let for immediate manufacturing, but a little later the company will start investigation into the practicability of doing its own manufacturing. If it decides to do its own work, it will be in the market for equipment at that time. Ralph Foster heads the company.

## Milwaukee

MILWAUKEE, July 23.

**Q**UIET pervades the machine-tool trade, although manufacturers are occupying as much capacity as before in filling old orders. Dealers booked only scattering orders the past week, but the condition is similar to that usually prevailing at this period. Inquiries are of moderate volume and portend increased activity. Considerable inquiry is put out for purposes of determining costs of contemplated extensions or new shop projects. It is known that the expectancy of lower costs is holding much work in abeyance, while there is now developing more confidence in the immediate future, lack of which probably was a factor in holding up numerous projects within the past 90 days. The city of Milwaukee has decided to defer purchase of several thousand tons of 54-in. cast iron pipe for at least a year, as the actual need can be deferred, and it is believed likely later purchase can be made at a lower price than at present.

The Seamless Tube Co. of Wisconsin has been organized at Appleton, Wis., by local capital which within the year acquired the plant, equipment and other property of the defunct Reliance Motor Truck Co. at Appleton, and have since operated the plant in a small way as a jobbing machine shop. Articles of incorporation were filed July 17. The capital stock is \$400,000. The principals are A. G. Brusewitz, Mathew Rossmeliss and William Greenen, all of Appleton.

Frank Holton & Co., Elkhorn, Wis., manufacturers of hand instruments, are entering the market for a sizable list of tool room and production equipment for two two-story additions, 60 x 267 and 40 x 120 ft. Work will be started about Aug. 15 so that the new facilities may be ready about Nov. 1. Frank Holton is president and general manager.

The Board of Industrial Education, LaCrosse, Wis., let the general contract to Grahm & Bathurst, 638 Plymouth Court, Minneapolis, Minn., for the construction of the new \$175,000 vocational training school, designed by Otto A. Merman, local architect. Equipment will be purchased some time in August or early September. Joseph B. Funke is president of the board.

The Allis Mfg. Co., 198-202 Milwaukee Street, Milwaukee, manufacturer of brass and aluminum castings, has increased its capital stock from \$50,000 to \$75,000 and will supplement its equipment to some extent. Details have not been issued, however. Orin L. Hower is secretary and manager.

R. E. Stoelting, commissioner of public works, Milwaukee, is asking bids until July 31 for the complete work of replacing the copper roofing of the main tower of the City Hall. A bond of \$4,200 or check for \$2,100 is required with each tender.

The Everready Auto Jack Co., Milwaukee, has been incorporated with \$35,000 capital stock to manufacture portable lifting devices, automobile jacks, etc. Plans for production have not been completed. The incorporators include William Putzke, Ervin Ruben and Walter Pozorski, 878 Oakland Avenue, Milwaukee.

## The Central South

ST. LOUIS, July 23.

**P**LANs are being perfected by the Independent Lubricating Co., Topeka, Kan., recently organized with a capital of \$100,000, for a new refinery estimated to cost \$60,000. J. E. Longshore, Topeka, is one of the heads of the company.

The State Highway Commission, St. Louis, has decided to call for bids for the erection of two new State-owned cement mills, instead of one, and will receive quotations within the next 60 days. If both mills are constructed, the investment is expected to exceed \$1,500,000, with equipment. The engineering department of the commission, Jefferson City, Mo., is in charge.

The Coleman-Nelson Co., Tulsa, Okla., has acquired the plant of the Southern Refining Co., Haskell, Okla., inactive for a number of months. Plans are under way for remodeling for the refining of gasoline.

The United States Foll Co., 2934 Grand Avenue, Louisville, is having plans drawn for a new one-story foundry estimated to cost \$17,000, exclusive of equipment. O. P. Ward, 1501 Lincoln Trust Building, is architect. R. S. Reynolds is president.



The Wabash Screen Door Co., 111 West Washington Street, Chicago, Ill., is planning the erection of an addition to its branch plant at Memphis, Tenn., estimated to cost \$50,000 including machinery.

The White Eagle Oil & Refining Co., Wichita, Kan., will take bids in August for the erection of its proposed refinery on property recently acquired near Casper, Wyo., to cost approximately \$600,000 with machinery. J. W. Calkins is in charge.

The W. M. Dean Co., Columbia, Tenn., has inquiries out for a traveling crane, hand-operated.

A manual training department will be installed in new school to be erected at Tiptonville, Tenn., estimated to cost \$75,000. Mahan & Broadwell, Memphis, Tenn., are architects.

The Westinghouse Electric & Mfg. Co., East Pittsburgh, and Orear-Leslie Building, Kansas City, Mo., will take bids early in August for a new factory branch on Milwaukee Avenue, to be three stories, totaling 30,000 sq. ft. of floor area. P. H. Anthony, 1109 Waldheim Building, is architect.

The Dosch Chemical Co., Seventh Street and Bernheim Lane, Louisville, has tentative plans for the rebuilding of the portion of its works destroyed by fire July 11, with loss estimated at \$200,000 including machinery and power equipment.

The Derby Oil & Refining Co., Wichita, Kan., has acquired property at Pueblo, Colo., and plans the erection of a new oil storage and distributing plant to cost in excess of \$50,000.

The No-Orle Bearing Co., Tulsa, Okla., recently organized, has leased a building and will install equipment for the manufacture of ball and other bearings. The installation will include a traveling crane, blowers, gang saws and kindred equipment. R. B. Laing is president, and John A. Bowman, secretary.

The Board of Fire & Water Commissioners, Kansas City, Mo., has preliminary plans for the installation of an electrically-operated pumping plant and other improvements in the municipal waterworks, estimated to cost \$1,000,000. Fuller & Maitland, Kansas City, are supervising and consulting engineers.

The Duncan Machinery Co., P. O. Box 265, Knoxville, Tenn., machinery dealer, has inquiries out for a gyratory crusher, Gates No. 5 or No. 6 type, or similar, second-hand.

Fire, July 17, destroyed a portion of the works of the Atlantic Oil Co., West Irvine, Ky., with loss estimated at \$150,000, including equipment and stock.

The Paint Pigment Co. of America, Knoxville, Tenn., will install machinery in a local building for the manufacture of pigments from iron ore at a cost of \$35,000. Max Grant is president.

The City Water Commission, City Hall, Tulsa, Okla., is taking bids until July 30 for pumping machinery for the Mohawk municipal pumping station, comprising two alternate proposals, as follows: (A) For two 12,000-gal. steam turbine driven centrifugal pumping engines, with two 300-hp. water-tube boilers; and (B) for two 12,000-gal. motor-driven centrifugal pumping engines. J. D. Trammell and W. R. Holway, 508 Wright Building, are engineers. D. H. Maury, 1445 Monadnock Block, Chicago, is consulting engineer. A. J. Rudd is chairman of the commission.

The White Oak Corporation, Knoxville, Tenn., H. T. Spencer, president, is in the market for a 200-ton wheel press, second-hand.

The American Electrical Co., 708 North Broadway, Oklahoma City, Okla., is arranging for the installation of a power lathe, about 16 in. swing, 6 ft. base, and other equipment.

The United States Engineer, Custom House, Louisville, is taking bids until July 30 for one centrifugal pump, 6 in. vertical type.

Wells Brothers, Great Bend, Kan., operating a forge and machine shop, are planning the installation of two power lathes, cylinder grinder, drill press, transmission equipment and other apparatus.

The Beech Creek Coal Co., Nicholson, Tenn., has tentative plans for rebuilding its tipple and coal washery recently destroyed by fire with loss reported at \$65,000, including machinery. J. P. Kivett, Tazewell, Tenn., operates the property.

## The Gulf States

BIRMINGHAM, July 23.

ARRANGEMENTS are being perfected by the Orchard Fire Pot Foundry Co., San Juan, Tex., for a new one-story foundry with capacity of about 250 fire pots per day. B. L. Miller is general manager.

The City Council, Dallas, Tex., has tentative plans for a one-story automobile machine shop and service building for municipal cars, estimated to cost \$75,000. John C. Harris, commissioner of finance, will be in charge.

Manual training equipment will be installed in the new high school to be erected at Denton, Tex., estimated to cost \$150,000, for which bids will be asked at once on a general contract. W. G. Clarkson, First National Bank Building, Fort Worth, Tex., is architect and engineer.

Fire, July 10, destroyed a portion of the oil plant of the Gulf Production Co., El Vista, Tex., with loss estimated at \$250,000 including equipment. It is planned to rebuild.

The Houston Lighting & Power Co., Houston, Tex., has plans for a new two-story power house estimated to cost \$140,000, including machinery.

The Gulf Crushing Co., Inc., 816 Howard Avenue, New Orleans, is planning the construction of a new power house, with Diesel engine, in connection with a new crushing mill, estimated to cost \$50,000. A conveyor and mechanical dryers will be installed in the works to be located at Morgan City, La. John Scott, Morgan City, is consulting engineer.

The Marion County Lime Co., Ocala, Fla., recently organized with a capital of \$250,000, has tentative plans for a local plant estimated to cost \$100,000, including machinery. E. F. Fitch is president.

The Wilson Cypress Co., Palatka, Fla., has inquiries out for two overhead, chain-operated cranes, 22 to 34 ft. span, 10 to 15-ton capacity.

Manual training equipment will be installed in the new high school to be erected at Leeds, Ala., estimated to cost \$75,000. The Board of Education is in charge.

The Porter Coal Co., Porter, Ala., is planning for the installation of electrical and mechanical equipment at its local properties, including power equipment, hoisting and conveying machinery, etc.

The Texas & Pacific Railroad Co., Dallas, Tex., is planning the construction of a new engine house and repair shops on site near the Fair Grounds. It will be equipped for heavy locomotive repairs and the present works, designed for light repairs, at Liberty and Gaston Avenues, will be removed to the new location. The new plant will cost about \$600,000, including equipment.

The Standard Equipment Co., Birmingham, machinery dealer, has inquiries out for four 3 to 8-ton capacity gasoline locomotives; four 16 to 25-ton saddle tank locomotives, and one 60 to 90-ton geared locomotive.

The Magnolia Petroleum Co., Dallas, Tex., operated by the Standard Oil Co. of New York, is planning the construction of a new storage and distributing plant at Powell, Tex., with capacity of 1,000,000 gal., estimated to cost about \$450,000 with equipment.

Fire, July 11, destroyed a portion of the car repair shops of the Kansas City Southern Railroad Co. at Shreveport, La., with loss estimated at \$125,000, including equipment. It is planned to rebuild.

The Transcontinental Oil Co., Dodge, Tex., has commenced an extension program to cost about \$1,000,000. A by-products plant will be built for the production of gasoline and additional machinery installed in the lubricating oil works. Power equipment and other machinery will be required.

The Trinity Portland Cement Co., Dallas, Tex., has acquired 600 acres near Fort Worth, Tex., as a site for new works. Plans for the initial unit will be prepared at once, to have a capacity of 2500 bbl. per 24 hours. It is estimated to cost \$750,000, including power house and other departments. Offices will be established at Fort Worth to handle the project and it is purposed to have the mill ready for operation within 12 months. H. L. McCourtie is president, and C. D. E. Ulrickson, vice-president and general manager.

Manual training equipment will be installed in the three-story high school addition to be erected at Tampa, Fla., by the Hillsborough County Board of Public Instruction, estimated to cost \$150,000. M. Leo Elliott, Tampa, is architect.

The Benwick Gasoline Co., P. O. Box 962, Eastland, Tex., is planning the construction of a new gasoline refinery, estimated to cost \$90,000. Additional steel tanks will be installed in the storage department. Louis Bender is president.

The Thermatomic Carbon Co., Sterlington, La., is planning the construction of a power house and machine shop at its new helium manufacturing plant near Breckenridge, Tex., estimated to cost \$250,000 with machinery.

Manual training equipment will be installed in the three-story high school to be erected in the Oak Cliff section, Dallas, Tex., estimated to cost \$500,000, for which bids will be called on a general contract about Aug. 15. DeWitt & Lemmon, Dallas, are architects.

Plans are under consideration by H. Banks Jones, city manager, Amarillo, Tex., for the installation of electrically-

operated pumping machinery in connection with extensions in the municipal waterworks, estimated to cost \$1,700,000.

The Bucy-Ingram Lumber Co., W. T. Waggoner Building, Fort Worth, Tex., is planning for the construction of a power house at its new lumber mill on Park Place, 110 x 265 ft., estimated to cost \$60,000.

The Eastern Texas Electric Co., Port Arthur, Tex., will make extensions in its power plant and system and install additional equipment estimated to cost \$135,000. Stone & Webster, Inc., 147 Milk Street, Boston, is engineer.

The French Kaolin Co., St. Petersburg, Fla., has inquiries out for a steam shovel, standard type, with  $\frac{3}{4}$ -yd. bucket, for installation at La Grange, Ga.

## Canada

TORONTO, July 23.

**I**MPROVED inquiry is reported for machine tools in the past few days. Municipal governing bodies are furnishing a good demand for equipment for waterworks, sewage and electrical plants, and during the week bids have been asked on equipment for several plants. Locomotive and car building shops are also buyers of equipment, chiefly for replacement purposes. While awards have been made in connection with new machine shops at Montreal for the Harbor Commission, it is understood that contracts for equipment and tools are still to be let. Orders for wood-working plants, sawmills, etc., show a good volume of business on this account.

R. Morrisette, De la Madeleine, Que., is asking for prices on a small pumping outfit, 40-ft. head, 1 $\frac{1}{2}$ -in. diameter, also for a gasoline motor for La Cie Opieduc, Batiscan, Que.

C. A. Maguire, chairman Board of Control, Toronto, will receive bids until Aug. 21 for the supply and installation of two 2,880,000 Imperial gal. centrifugal pumps and motors at the Strachan Avenue sewage disposal station. Specifications, etc., are at Room 12, City Hall.

The Brigden Brick & Tile plant, Brigden, Ont., has been taken over by the Ontario Farmers Drainage Co., Ltd., of which Andrew Hicks is president. Additions are under way and new equipment will be installed.

The S. E. Dinsmore Co. has the general contract for a power plant at Ford, Ont., for the Ford Motor Co. of Canada, to cost \$400,000. It will be 112 x 148 ft., of steel, reinforced concrete and brick. Equipment will cost approximately \$1,500,000.

J. G. Pendrith, 970 Queen Street, West, Toronto, has awarded contract to L. E. Dowling, 167 Yonge Street, for a brick machine shop, 56 x 142 ft., to cost \$30,000.

The Southern Canada Power Co., 20 St. Nicholas Street, Montreal, is having plans prepared for power development at Hennings Falls, Que., and will call for bids in September.

The Hydro Electric Commission, North Bay, Ont., is in the market for three steam generators for a substation at Gormonville, Man.

The Dominion Tar & Chemical Co., Ltd., St. Boniface, Man., is in the market for complete equipment for a boiler house and distillery, also for three storage tanks.

The Dominion Refineries, Ltd., Lethbridge, Alta., has started work on a refinery to cost \$100,000 and to have a daily capacity of 500 bbl.

The Hollinger Consolidated Gold Mines, head office, Toronto, has awarded the contract for a new dam and power plant on the Abitibi River to Sir William Arrol, Ltd., St. Catharines, Ont., and London, England. Plans call for the installation of equipment for the production of 25,000 hp.

Bradshaw's, Ltd., have started work on the erection of a plant on Symington Avenue, Toronto, for the manufacture of waxed paper, etc. It will be 65 x 216 ft., of reinforced concrete.

The Macdonald Wire Goods Co., Ltd., Drummondville, Que., has completed a new brick factory, 75 x 260 ft., and proposes to bring out new lines of wire and stamped kitchenware early in the fall. J. S. Macdonald is general manager.

The Canadian Mead-Morrison Co., Ltd., Montreal, has recently purchased considerable new equipment and machinery for its plate shop, including rolls and gate shears and electric welding machines. The company can now handle sheet metal up to 8 ft. wide.

## STEEL AND INDUSTRIAL STOCKS

### Some Covering of Shorts—Tone Is More Cheerful but Dullness Still Prevails

Recent movements in steel and industrial stocks show effects of buying by investors who have been attracted by the low prices. Further proof is at hand that Steel common is no longer a speculative favorite. The leader is still dull and moves more slowly than the rest of the list. No significant change has occurred yet, but the general tone is more cheerful. In the latter half of the week considerable short covering was apparent in Steel common and Crucible, occasioning an advance in Crucible of 2 points on small turnover. Bethlehem was the strongest of the steels on several occasions. Equipment issues continued strong, reflecting the continued activity of the railroads. Steel & Tube of America has been listed on the Stock Exchange.

The range of active steel and industrial stocks from Monday of last week to Monday of this week was as follows:

	Low	High		Low	High
Allis-Chalmers...	40	42 $\frac{1}{2}$	Inland Steel...	32 $\frac{1}{2}$	32 $\frac{1}{2}$
Allis-Chal. pf....	89 $\frac{1}{2}$	90	Int. Har. ....	75	78 $\frac{1}{2}$
Am. B. S. & Fdy.	71	71 $\frac{1}{2}$	Lima Loco. ....	60 $\frac{1}{2}$	64 $\frac{1}{2}$
Am. Can. ....	87 $\frac{1}{2}$	93 $\frac{1}{2}$	Midvale Steel...	23 $\frac{1}{2}$	25 $\frac{1}{2}$
Am. Can. pf....	108 $\frac{1}{2}$	109 $\frac{1}{2}$	Nat.-Acme ....	10 $\frac{1}{2}$	11 $\frac{1}{2}$
Am. Car & Fdy...	151 $\frac{1}{2}$	160	Nat. En. & Stm.	57	61 $\frac{1}{2}$
Am. Car & F. pf.	122 $\frac{1}{2}$	125 $\frac{1}{2}$	Nat. En. & St. pf.	95	95
Am. Loco. ....	66	69 $\frac{1}{2}$	N. Y. Air Brake..	30 $\frac{1}{2}$	34
Am. Loco. pf....	119	119	Otis Steel ....	8 $\frac{1}{2}$	8 $\frac{1}{2}$
Am. Radiator ..	80	81	Pressed Steel...	52	56 $\frac{1}{2}$
Am. Roll. Mill pf.	97	97	Pressed Steel pf.	90	90 $\frac{1}{2}$
Am. Stl. Fdries..	33 $\frac{1}{2}$	35 $\frac{1}{2}$	Ry. Steel Spring.	101 $\frac{1}{2}$	104 $\frac{1}{2}$
Am. Stl. Fd. pf..	100 $\frac{1}{2}$	101	Replogle Steel...	14 $\frac{1}{2}$	15 $\frac{1}{2}$
Bald. Loco. ....	117 $\frac{1}{2}$	123 $\frac{1}{2}$	Republic ....	43	47
Bald. Loco. pf..	112 $\frac{1}{2}$	112 $\frac{1}{2}$	Republic pf. ....	89	93 $\frac{1}{2}$
Beth. Steel ....	44 $\frac{1}{2}$	48 $\frac{1}{2}$	Sloss ....	42	45
Beth. cum. pf....	89 $\frac{1}{2}$	89 $\frac{1}{2}$	Steel & Tube pf..	103 $\frac{1}{2}$	105 $\frac{1}{2}$
Beth. Stl. 8% pf.	102	102 $\frac{1}{2}$	Steel of Canada..	68 $\frac{1}{2}$	68 $\frac{1}{2}$
Br. Em. Steel...	6	6	Timken Roller ..	36 $\frac{1}{2}$	38 $\frac{1}{2}$
Br. Em. Stl. 1 pf.	17 $\frac{1}{2}$	19	Transue-Williams	31	31
Chic. Pneu. Tool.	79 $\frac{1}{2}$	80 $\frac{1}{2}$	Un. Tank Car...	87	87
Colo. Fuel ....	27 $\frac{1}{2}$	29 $\frac{1}{2}$	U. S. Pipe.....	24 $\frac{1}{2}$	28
Crucible Steel...	62 $\frac{1}{2}$	67 $\frac{1}{2}$	U. S. Pipe pf....	68 $\frac{1}{2}$	71
Crucible Steel pf.	89	89	U. S. Steel.....	89 $\frac{1}{2}$	92 $\frac{1}{2}$
Deere pf. ....	62	64	U. S. Steel pf....	117 $\frac{1}{2}$	118
Gen. Electric ..	174	176 $\frac{1}{2}$	Vanadium Steel..	30 $\frac{1}{2}$	32 $\frac{1}{2}$
Gt. No. Ore Cert.	28 $\frac{1}{2}$	29 $\frac{1}{2}$	Va. I. C. & Coke	56	57
Gulf States Steel	69 $\frac{1}{2}$	75 $\frac{1}{2}$	W'house Air Br.	81 $\frac{1}{2}$	84

### Republic Iron & Steel Co. Declares Special Dividend

Directors of the Republic Iron & Steel Co. have declared a special payment of 2 per cent of dividends in arrears on preferred stock in addition to the regular quarterly distribution of 1 $\frac{1}{4}$  per cent. This action was made possible through a substantial increase in earnings for the quarter ended June 30. Net profit applicable to dividends of \$2,206,845, after taxes and charges were reported, equal after preferred dividend requirements to \$4.23 a share earned on the \$30,000,000 common stock outstanding, against \$3.65 a share earned in the preceding quarter and 34c. a share earned on \$25,000,000 preferred stock in the second quarter of 1922.

Unfilled orders on hand at the end of June, however, showed a sharp decline from the preceding quarter, amounting to 187,392 tons, against 332,795 tons on March 31 and 196,886 tons on June 30, 1922. The extra dividend on the preferred stock reduces the arrearage on that issue to 3 per cent. Both the extra and the regular dividends are payable Oct. 1 to shareholders of record Sept. 15. The report for the June quarter compared with the corresponding period of 1922 is as follows:

	1923	1922
Operating profit .....	\$2,347,247	\$563,053
Depreciation and renewals	349,202	249,575
Bond interest .....	293,021	204,774
Exhaustion of minerals..	98,179	22,322
Net profit .....	2,206,845	86,382
Preferred dividends .....	937,500	.....
Surplus .....	1,269,345	86,382

Based on the two quarterly reports for 1923, net profits, after taxes and charges for the six months ended June 30, were \$3,740,688, or the equivalent of \$7.88 a share, on the common stock, after allowing for preferred dividend requirements. For the first six months of 1922 a deficit of \$625,700 was reported.

The West Penn Appliance Co., Knoxville, Pa., has been organized as a subsidiary of the West Penn Power Co., 14 Wood Street, Pittsburgh. The new company will do no manufacturing itself but will act as distributor for the parent company. G. M. Gadsby is vice-president.



## Industrial Finances

Total net revenue of the Virginia Iron, Coal & Coke Co. for the six months ended June 30 was \$212,831 and after interest, taxes, etc., net income reached \$358,543. Of this \$243,559 was earned in the first quarter.

Gross sales of the Hayes Wheel Co. for the first six months of 1923 totaled \$9,672,812, against \$6,155,431 in that period of the year previous, a gain of 57 per cent. Net profit was \$900,026 against \$510,331. After all charges, net applicable to common stock was \$787,526, or \$3.92 per share. Balance sheet as of June 30 favors assets in the ratio 3 to 1.

The Colorado Fuel & Iron Co. reports gross receipts for the quarter ended June 30 of \$12,103,516 against \$8,650,240 in that period of 1922. Operating expenses, interest, taxes and reserves having been provided for, there was reported a surplus for the period of \$498,058, equivalent, after allowing for preferred dividends, to \$1.34 per share on the \$34,235,500 common stock outstanding. In the same period last year there appeared a deficit of \$19,430. Surplus for the first six months of 1923 was \$880,771, or \$2.34 per share on common.

New York Air Brake Co. in the first six months of 1923 reported net earnings available for dividends of \$1,487,206, or approximately \$5 per share on the 300,000 shares of stock. This compares with net profit in the full year 1922 of only \$958,741. Orders on hand are between \$2,000,000 and \$3,000,000, the highest in the company's history.

The Donner Steel Co. reports net earnings for the six months ended June 30, from operations, after maintenance, taxes, etc., of \$1,348,964. Net income was \$803,516.

Net operating income of the Gulf States Steel Co. for the quarter ended June 30 was \$597,670. After providing for taxes, depreciation, etc., net income was \$439,928, which added to net for first quarter makes \$973,906, for the six months.

Two Federal receivers have been appointed to reorganize the Marlin Arms Corporation, New Haven, according to John F. Moran, president. Business will be continued without interruption, he stated. Controlling interest of the corporation is held by the Metropolitan Finance Corporation of New York, controlled by Harvey Fisk & Sons, Inc.

The Eaton Axle & Spring Co. reports sales amounting to \$2,206,803 and profits, after all charges, of \$192,083 for the quarter ended June 30.

The Penn Seaboard Steel Corporation, in a report covering the five months ended May 31, shows net profit after expenses of \$180,654. After deductions for interest, idle plant expenses, etc., and \$9,402, which was applicable to minority holding, there was a balance of \$58,736.

Improvement in the machine tool industry this year is reflected to some extent in the earnings of the National Acme Co., automatic screw machines, etc. Sales for the six months ending with June, last, were \$5,215,593, or nearly equal to the total for 1922. After allowing for bond interest charges, the company earned \$2.51 on its 500,000 shares of stock of \$50 par value.

## Industrial News Items

The Marion Steel Body Co., Marion, Ohio, has been incorporated with capital stock of \$50,000 to manufacture automobile bodies. Its building is completed, but the details of the company's plans for the future are unknown. Gwendolyn Burke heads the company.

H. O. Swoboda, Inc., Empire Building, Pittsburgh, has been retained as consulting electrical engineer by the Klein-Logan Co., that city, tool manufacturer, and has changed the entire electrical equipment of the latter from direct to alternating current. The Swoboda company also has prepared plans for the electrical equipment of the new buildings under construction by the Neely Nut & Bolt Co., South Side, Pittsburgh.

The Standard Turbine Corporation, Wellsville, N. Y., for some time engaged in the manufacture of steam turbines in capacities up to 750 hp., has purchased the plant of the Charles Youngs Machine Co., Wellsville. A contract has been awarded to the Austin Co., Cleveland, for the construction of a new steel building to be located at Scio, N. Y. It will be completed in August and will be the permanent location of the company. J. Y. Dahlstrand, formerly chief engineer of the Kerr Turbine Co., Wellsville, is manager.

The Brown Paper Co., Inc., Monroe, La., recently organized by pulp and paper manufacturers of Orange, Tex., has awarded a contract for the construction of a \$2,000,000 mill to the Morton C. Tuttle Co., Boston.

The Frigair Co., Pasadena, Cal., has been organized with capital stock of \$250,000 to manufacture refrigerators and refrigerating equipment. General headquarters are made in rented buildings equipped for work. Several branch factories

will be established in the East and Middle West for manufacturing. W. F. Warner is president.

C. F. Fay, formerly district sales agent in the New York territory for the Eastern Steel Co., has purchased the business of Abeel Brothers, iron merchants, 190 South Street, New York, and incorporated under the name Abeels Brothers, Inc. The acquired business antedates the war of the Revolution, having been formed in 1765 as a general merchandizing company. In the building now occupied are many relics of ancient business methods and instruments. Though primitive in construction, the building is yet sturdy and capable of housing a modern warehouse business. The officers of the new organization are: C. F. Fay, president and treasurer; F. A. Thomas and C. H. Arnold, vice-president, and Maybelle K. Fay, secretary.

The Empore Engineering Co., Inc., 316 West Redwood Street, Baltimore, has been organized to manufacture and distribute one-ton refrigerating plants of special design. Compressors and other parts will be manufactured under contract. E. A. Fowler is president; G. V. K. Greene, vice-president; A. Anderson, secretary, and E. F. Dean, treasurer and general manager.

The American Plywood Wheel Co., 5675 Wabash Avenue, Detroit, was recently organized to manufacture a ply-disc wheel, which will be distributed to dealers throughout the country. The company is in the market for automobile hubs, brake drums, flanges, felloe bands, rim, rim bolts and hub bolts. Its present plant will be occupied for about a year, when the company expects to build a plant of its own. W. H. Ebry is president.

Elmer S. Hubbard, as principal, has purchased the plant, business and good-will of the Cutaway Harrow Co., Higganum, Conn. The business will resume with Mr. Hubbard as president.

The General Electric Co. in the six months ended June 30 booked orders totalling \$164,263,755 against \$114,240,248 for the corresponding period in 1922. In these six months the company took on new business at the monthly rate of \$27,377,000, or about \$6,317,000 per week.

The Carroll Foundry & Machine Co., Bucyrus, Ohio, at a special meeting of the stockholders July 13 approved a change in name of the company to the Bucyrus Road Machinery Co. and an increase in the authorized common stock from 10,000 to 25,000 shares, of no par stock, and from 5000 to 7000 shares of \$100 par value preferred stock. H. D. Jones, formerly with the Buffalo-Springfield Roller Co., and later with the Gallon Iron Works & Mfg. Co., has become affiliated with the Bucyrus company as vice-president. Other officers include E. L. Frantz, chairman of the Apex Electrical Co., Cleveland, chairman of the board, W. E. Mathew, president, George H. Lavan, secretary, and R. B. Washburn, treasurer.

The Cincinnati Railroads Terminal Development Co., Cincinnati, has been incorporated with a capitalization of \$250,000 by a number of prominent citizens of the city. The organization is preliminary to a larger organization to be capitalized at \$20,000,000, to build terminals in the lower section of the city, estimated to cost, when completed, approximately \$80,000,000, and which will be leased to the various railroads entering the city. Geo. D. Crabbs, president of the Philip Carey Mfg. Co., is president of the Terminal Development Co.

The Timken-Detroit Axle Co., Detroit, has acquired the plant of the Standard Equipment Co., West 106th Street and Lorain Avenue, Cleveland, by the purchase of the preferred and common stock. The Cleveland company was organized in 1917 and has a modern plant that is engaged in the manufacture of automobile axles, beveled gears, differentials and drop forgings. The Standard Equipment Co. will retain its identity and will operate under its present management with O. J. Ashman as vice-president and D. F. Domizi in charge of engineering and production. It is stated that Mr. Ashman will be elected a director of the Timken company.

Rochester Industries, Inc., Rochester, N. Y., has been organized to manufacture a new development in portable typewriters. Temporary quarters have been secured in the Davis Machine Tool Co.'s building at St. Paul Street, where manufacturing processes are being developed. It is hoped to start quantity production next year. Working capital will be provided by issuing \$500,000 in preferred stock. For future use \$750,000 in stock is retained. Fifty thousand shares of common also were issued. It is planned to build a plant and to manufacture other office appliances. Morton H. Anderson, formerly superintendent of production of the Bethlehem Steel Co., and general manager of the Symington-Anderson Co., who has been working for three years on the project, is president; Samuel E. Durand, manufacturer, vice-president and treasurer; George E. Wynkoop, secretary. Among the directors are Charles F. Wray, treasurer Wray & Sons and the National Brass Co., and Arthur Ingle, president Brighton Corporation and vice-president of the Consolidated Tool Co.

# Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general heading of "Iron and Steel Markets" and "Non-ferrous Metals."

## Iron and Soft Steel Bars and Shapes

<b>Bars:</b>	
Refined iron bars, base price.....	3.54c.
Swedish charcoal iron bars, base.....	7.50c.
Soft steel bars, base price.....	3.54c.
Hoops, base price.....	5.19c.
Bands, base price.....	4.39c.
<b>Beams and channels, angles and tees</b>	
3 in. x ¼ in. and larger, base.....	3.64c.
Channels, angles and tees under 3 in. x ¼ in., base.....	3.54c.

## Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger.....	3.60c.
(Smooth finish, 1 to 2½ x ¼ in. and larger).....	4.10c.
Toe-calk, ½ x ¾ in. and larger.....	4.60c.
Cold-rolled strip, soft and quarter hard.....	7.50c. to 8.50c.
Open-hearth, spring-steel.....	5.00c. to 7.50c.
<b>Shafting and Screw Stock:</b>	
Rounds.....	4.65c.
Squares, flats and hex.....	5.15c.
Standard tool steel, base price.....	15.00c.
Extra tool steel.....	18.00c.
Special tool steel.....	23.00c.
High speed steel, 18 per cent tungsten.....	75c. to 80c.

## Tank Plates—Steel

¼ in. and heavier.....	3.64c.
------------------------	--------

## Sheets

### Blue Annealed

	Per Lb.
No. 10.....	4.59c.
No. 12.....	4.64c.
No. 14.....	4.69c.
No. 16.....	4.79c.

### Box Annealed—Black

	Soft Steel C. R., One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
Nos. 18 to 20.....	4.45c. to 4.80c.	.....
Nos. 22 and 24.....	4.50c. to 4.85c.	5.10c.
No. 26.....	4.55c. to 4.90c.	5.15c.
No. 28.....	4.65c. to 5.00c.	5.25c.
No. 30.....	4.85c. to 5.20c.	.....

No. 28 and lighter, 36 in. wide, 10c. higher

### Galvanized

	Per Lb.
No. 14.....	4.75c. to 5.10c.
No. 16.....	4.90c. to 5.25c.
Nos. 18 and 20.....	5.05c. to 5.40c.
Nos. 22 and 24.....	5.20c. to 5.45c.
No. 26.....	5.35c. to 5.70c.
No. 27.....	5.50c. to 5.85c.
No. 28.....	5.65c. to 6.00c.
No. 30.....	6.10c. to 6.50c.

No. 28 and lighter, 36 in. wide, 20c. higher

## Welded Pipe

### Standard Steel

	Black	Galv.
½ in. Butt... —41 —24		
¾ in. Butt... —46 —32		
1-3 in. Butt... —48 —34		
2½-6 in. Lap... —44 —30		
7-8 in. Lap... —41 —11		
9-12 in. Lap... —34 —6		

### Wrought Iron

	Black	Galv.
½ in. Butt... —4 —19		
¾ in. Butt... —11 —9		
1-1½ in. Butt... —14 —6		
2 in. Lap... —5 —14		
2½-6 in. Lap... —9 —9		
7-12 in. Lap... —3 —16		

## Steel Wire

	Per Lb.
Bright basic.....	5.00c.
Annealed soft.....	5.00c.
Galvanized annealed.....	5.65c.
Coppered basic.....	5.65c.
Tinned soft Bessemer.....	6.65c.

\*Regular extras for lighter gage.

## Brass Sheet, Rod, Tube and Wire

### BASE PRICE

High brass sheet.....	19¼c. to 20¼c.
High brass wire.....	20¼c. to 21¼c.
Brass rods.....	18 c. to 19 c.
Brass tube, brazed.....	27¼c. to 28¼c.
Brass tube, seamless.....	25½c. to 26½c.
Copper tube, seamless.....	27 c. to 28 c.

## Copper Sheets

Sheet copper, hot rolled, 23¼c. to 24½c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

## Tin Plates

Bright Tin	Grade	Grade	Coke—14 x 20	Prime	Seconds
	"AAA"	"A"			
	Charcoal	Charcoal			
	14x20	14x20			
IC..	\$11.75	\$10.50	80 lb..	\$6.55	\$6.30
IX..	13.00	11.75	90 lb..	6.65	6.40
IXX..	14.75	13.00	100 lb..	6.75	6.50
IXXX..	16.50	14.75	IC..	7.00	6.75
IXXXX..	18.50	16.50	IX..	8.25	8.00
			IXX..	9.50	9.25
			IXXX..	10.75	10.50
			IXXXX..	12.00	10.75

## Terne Plates

8 lb. coating, 14 x 20

100 lb. ....	\$7.00 to \$8.00
IC .....	7.25 to 8.25
IX .....	8.25 to 8.75
Fire door stock .....	9.00 to 10.00

## Tin

Straits pig .....	41c.
Bar .....	48c. to 53c.

## Copper

Lake ingot .....	17½c.
Electrolytic .....	17 c.
Casting .....	16¼c.

## Spelter and Sheet Zinc

Western spelter .....	7½c.
Sheet zinc, No. 9 base, casks.....	10¼c. open 10¼c.

## Lead and Solder\*

American pig lead .....	8c. to 8¼c.
Bar lead .....	11c. to 12c.
Solder, ½ and ½ guaranteed .....	29c.
No. 1 solder .....	27c.
Refined solder .....	23c.

\*Prices of solder indicated by private brand vary according to composition.

## Babbitt Metal

Best grade, per lb.....	75c. to 90c.
Commercial grade, per lb.....	35c. to 50c.
Grade D, per lb.....	25c. to 35c.

## Antimony

Asiatic .....	8c. to 8½c.
---------------	-------------

## Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb....	32c. to 33c.
--	--------------

## Old Metals

There has been practically no change in values during the week and business has been moderate. Dealers' buying prices are nominally as follows:

	Cents Per Lb.
Copper, heavy crucible .....	12.50
Copper, heavy wire .....	11.75
Copper, light bottoms .....	10.00
Brass, heavy .....	6.50
Brass, light.....	5.25
Heavy machine composition .....	9.25
No. 1 yellow brass turnings .....	6.75
No. 1 red brass or composition turnings .....	8.00
Lead, heavy .....	4.75
Lead, tea .....	3.50
Zinc .....	4.00



